

# Service Manual

**PIONEER**  
The Art of Entertainment

DEH-50DH/UC



ORDER NO.  
**CRT1646**

HIGH POWER CD PLAYER WITH FM/AM TUNER

# DEH-50DH UC

## DEH-40DH UC

**COMPACT**  
**disc**  
DIGITAL AUDIO

- See the service manual CX-540(CRT1574) for the CD mechanism description, disassembly and circuit description.
- The CD mechanism employed in this model is one of CX-540 series.

## CONTENTS

1. SAFETY INFORMATION .....	2	8. CIRCUIT DIAGRAM AND PATTERN .....	
2. SPECIFICATIONS .....	2	8.1 CD MECHANISM MODULE .....	38
3. DISASSEMBLY .....	3	8.2 TUNER AMP UNIT .....	44
4. ADJUSTMENT .....	4	8.3 KEY BOARD UNIT .....	49
5. ERROR NUMBERS AND NEW TEST MODE .....	17	8.4 FM/AM TUNER UNIT .....	53
6. ELECTRICAL PARTS LIST .....	25	8.5 EQUALIZER UNIT(DEH-50DH) .....	57
7. BLOCK DIAGRAM .....	33	9. CHASSIS EXPLODED VIEW .....	59
		10. CD MECHANISM MODULE EXPLODED VIEW .....	63
		11. PACKING METHOD .....	67
		12. OPERATION AND CONNECTION .....	69

**PIONEER ELECTRONIC CORPORATION**

4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan

PIONEER ELECTRONICS SERVICE INC. P.O.Box 1760, Long Beach, California 90801 U.S.A.

PIONEER ELECTRONICS OF CANADA, INC. 300 Allstate Parkway Markham, Ontario L3R 0P2 Canada

PIONEER ELECTRONIC (EUROPE) N.V. Haven 1087 Keetberglaan 1, 9120 Melsele, Belgium

PIONEER ELECTRONICS AUSTRALIA PTY.LTD. 178-184 Boundary Road, Branside, Victoria 3195, Australia TEL:(03)580-9911

© PIONEER ELECTRONIC CORPORATION 1995

K-FPS.JAN. 1995 Printed in Japan

## 1. SAFETY INFORMATION

### CAUTION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual. Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely; you should not risk trying to do so and refer the repair to a qualified service technician.

### WARNING

Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5). When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

## 2. SPECIFICATIONS

### ● DEH-500H

<b>General</b>	
Power source	14.4 V DC (10.8 — 15.6 V allowable)
Grounding system	Negative type
Max. current consumption	10.0 A
Dimensions (mounting size)	198 (W) × 78 (H) × 135 (D) mm (7-3/4(W) × 3-1/8(H) × 5-3/8(D) in.)
(nose)	190 (W) × 74 (H) × 20 (D) mm (7-1/2(W) × 2-7/8(H) × 3/4(D) in.)
Weight	2.0 kg (4.4 lb)
<b>Amplifier</b>	
Continuous power output is 15W per channel min. into 4 ohms, both channels driven 50 to 15,000 Hz with no more than 5% THD.	
Max. power output	35 W × 4 (EIAJ)
Load impedance	4 Ω (4 — 8 Ω allowable)
Preout output level/output impedance	500 mV/1 kΩ
Tone controls (bass)	±12 dB (100 Hz)
(treble)	±12 dB (10 kHz)
Loudness contour	+10 dB (100 Hz), +6.5 dB (10 kHz) (Volume: -30 dB)
<b>CD player</b>	
System	Compact disc audio system
Usable discs	Compact disc
Signal format	Sampling frequency: 44.1 kHz Number of quantization bits: 18; linear
Frequency Characteristics	5 — 20,000 Hz (±1 dB)
Signal-to-noise ratio	94 dB (1 kHz) (IHF-A network)
Dynamic Range	90 dB (1 kHz)
Number of channels	2 (stereo)
<b>FM tuner</b>	
Frequency range	87.9 — 107.9 MHz
Usable sensitivity	11 dBf (1.0 μV/75 Ω, mono, S/N: 30 dB)
50 dB quieting sensitivity	16 dBf (1.7 μV/75 Ω, mono)
Signal-to-noise ratio	70 dB (IHF-A network)
Distortion	0.3% (at 65 dBf, 1 kHz, stereo)
Frequency response	30 — 15,000 Hz (±3 dB)
Stereo separation	40 dB (at 65 dBf, 1 kHz)
Selectivity	70 dB (2ACA) (±400 kHz)
Tree-signal intermodulation (desire signal level)	50 dBf (two undesire signal level: 110 dBf)
<b>AM tuner</b>	
Frequency range	530 — 1,710 kHz
Usable sensitivity	18 μV (25 dB) (S/N: 20 dB)
Selectivity	50 dB (±10 kHz)

These specifications were determined and are presented in accordance with specification standards established by the Ad Hoc Committee of Car Stereo Manufacturers.

#### Note:

Specifications and the design are subject to possible modification without notice due to improvements.

### ● DEH-400H

<b>General</b>	
Power source	14.4 V DC (10.8 — 15.6 V allowable)
Grounding system	Negative type
Max. current consumption	10.0 A
Dimensions (mounting size)	198 (W) × 78 (H) × 135 (D) mm (7-3/4(W) × 3-1/8(H) × 5-3/8(D) in.)
(nose)	190 (W) × 74 (H) × 20 (D) mm (7-1/2(W) × 2-7/8(H) × 3/4(D) in.)
Weight	2.0 kg (4.4 lb)
<b>Amplifier</b>	
Continuous power output is 15W per channel min. into 4 ohms, both channels driven 50 to 15,000 Hz with no more than 5% THD.	
Max. power output	35 W × 4 (EIAJ)
Load impedance	4 Ω (4 — 8 Ω allowable)
Preout output level/output impedance	500 mV/1 kΩ
Tone controls (bass)	±12 dB (100 Hz)
(treble)	±12 dB (10 kHz)
Loudness contour	+10 dB (100 Hz), +6.5 dB (10 kHz) (Volume: -30 dB)
<b>CD player</b>	
System	Compact disc audio system
Usable discs	Compact disc
Signal format	Sampling frequency: 44.1 kHz Number of quantization bits: 18; linear
Frequency Characteristics	5 — 20,000 Hz (±1 dB)
Signal-to-noise ratio	94 dB (1 kHz) (IHF-A network)
Dynamic Range	90 dB (1 kHz)
Number of channels	2 (stereo)
<b>FM tuner</b>	
Frequency range	87.9 — 107.9 MHz
Usable sensitivity	11 dBf (1.0 μV/75 Ω, mono, S/N: 30 dB)
50 dB quieting sensitivity	16 dBf (1.7 μV/75 Ω, mono)
Signal-to-noise ratio	70 dB (IHF-A network)
Distortion	0.3% (at 65 dBf, 1 kHz, stereo)
Frequency response	30 — 15,000 Hz (±3 dB)
Stereo separation	40 dB (at 65 dBf, 1 kHz)
Selectivity	70 dB (2ACA) (±400 kHz)
Tree-signal intermodulation (desire signal level)	50 dBf (two undesire signal level: 110 dBf)
<b>AM tuner</b>	
Frequency range	530 — 1,710 kHz
Usable sensitivity	18 μV (25 dB) (S/N: 20 dB)
Selectivity	50 dB (±10 kHz)

These specifications were determined and are presented in accordance with specification standards established by the Ad Hoc Committee of Car Stereo Manufacturers.

#### Note:

Specifications and the design are subject to possible modification without notice due to improvements.

### 3. DISASSEMBLY

#### ● Removing the Case

- 1.Remove the three screws A , and then remove the case.

#### ● Removing the Panel Assy

- 1.Remove the three screws B.
- 2.Disconnect the five stoppers C , and then remove the panel assy.

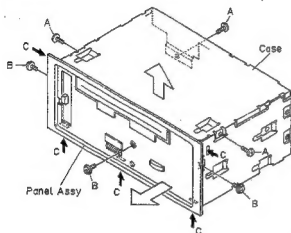


Fig.1

#### ● Removing the CD Mechanism Module

- 1.Remove the four screws D.
- 2.Disconnect the connector indicated by arrow.
- 3.Remove the CD Mechanism Module.

#### ● Removing the Bracket

- 1.Remove the four screws E , and then remove the bracket.

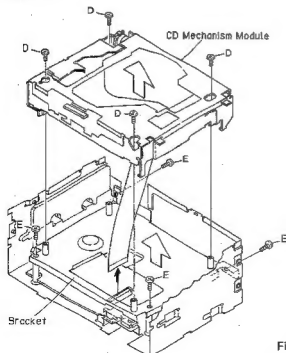


Fig.2

#### ● Removing the Equalizer Unit(DEH-50DH)

- 1.Stretch the two claws F , and then remove the equalizer unit.

#### ● Removing the Tuner Amp Unit

- 1.Remove the four screws.
- 2.Stretch the four claws G , and then remove the tuner amp unit.

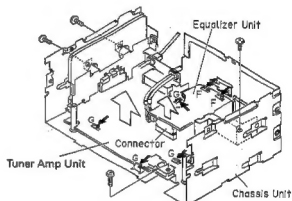


Fig.3

## 4. ADJUSTMENT

### 4.1 CD PLAYER SECTION

#### 1) Precautions

- This unit uses a single power supply (+5V) for the regulator. The signal reference potential, therefore, is connected to REFO (approx. 2.5V) instead of GND.

If REFO and GND are connected to each other by mistake during adjustments, not only will it be impossible to measure the potential correctly, but the servo will malfunction and a severe shock will be applied to the pick-up. To avoid this, take special note of the following.

Do not connect the negative probe of the measuring equipment to REFO and GND together. It is especially important not to connect the channel 1 negative probe of the oscilloscope to REFO with the channel 2 negative probe connected to GND.

Since the frame of the measuring instrument is usually at the same potential as the negative probe, change the frame of the measuring instrument to floating status.

If by accident REFO comes in contact with GND, immediately switch the regulator or power OFF.

- Always make sure the regulator is OFF when connecting and disconnecting the various filters and wiring required for measurements.
- Before proceeding to further adjustments and measurements after switching regulator ON, let the player run for about one minute to allow the circuits to stabilize.
- Since the protective systems in the unit's software are rendered inoperative in test mode, be very careful to avoid mechanical and/or electrical shocks to the system when making adjustment.
- Test mode starting procedure  
Switch ACC, back-up ON while pressing the 4 and 6 keys together.

- Test mode cancellation  
Switch ACC, back-up OFF.

- Disc detection during loading and eject operations is performed by means of a photo transistor in this unit. Consequently, if the inside of the unit is exposed to a strong light source when the outer casing is removed for repairs or adjustment, the following malfunctions may occur.

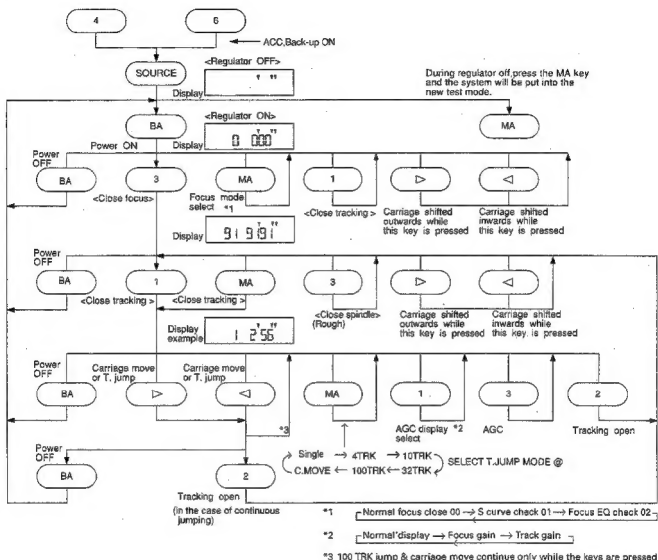
\*During PLAY, even if the eject button is pressed, the disc will not be ejected and the unit will remain in the PLAY mode.

\*The unit will not load a disc.

When the unit malfunctions this way, either reposition the light source, move the unit or cover the photo transistor.

- When loading and unloading discs during adjustment procedures, always wait for the disc to be properly clamped or ejected before pressing another key. Otherwise, there is a risk of the actuator being destroyed.
- Turn power off when pressing the button ▷ or the button ◁ key for focus search in the test mode. (Or else lens may stick and the actuator may be damaged.)
- SINGLE/4TRK/10TRK/32TRK will continue to operate even after the key is released. Tracking is closed the moment C-MOVE is released.
- JUMP MODE resets to SINGLE as soon as power is switched off.

## ● Flow Chart



## ● Measuring Equipment and Jigs

Adjustment	Measuring equipment & jigs
1 Tracking Error Offset Adjustment 1	DC V Meter
2 Grating Check / Adjustment 1	Oscilloscope, ABEX TCD-784 (or SONY TYPE 4), Two L.P.F., Clock Driver
3 Grating Adjustment 2	Oscilloscope, Grating Adjustment Filter (B.P.F.), mV Meter, ABEX TCD-784 (or SONY TYPE 4), Two L.P.F., Clock Driver
4 Tracking Balance Adjustment 1	Oscilloscope, Low-pass Filter, ABEX TCD-784 (or SONY TYPE 4)
5 Focus Bias Adjustment	Oscilloscope, ABEX TCD-784 (or SONY TYPE 4)
6 RFO Offset Adjustment	Oscilloscope, ABEX TCD-784 (or SONY TYPE 4)
7 Tracking Error Offset Adjustment 2	DC V Meter
8 Tracking Balance Adjustment 2	Oscilloscope, Low-pass Filter, ABEX TCD-784 (or SONY TYPE 4)

● Adjustment Point

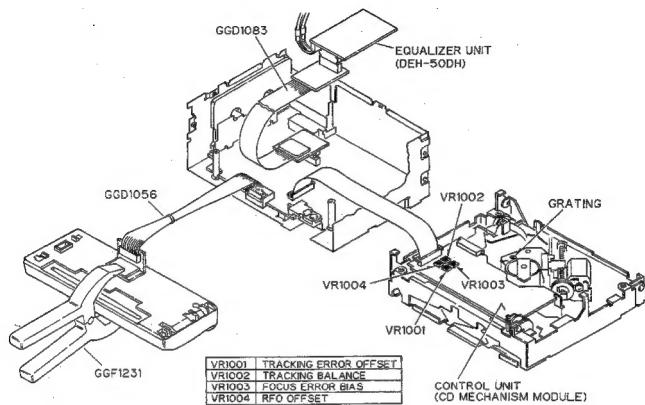


Fig.4

● Test Point

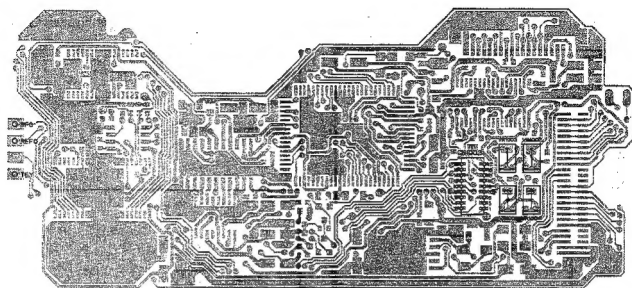
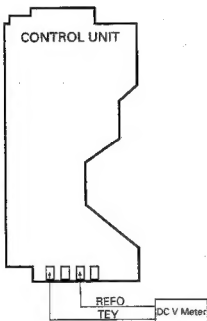


Fig.5

## 1 Tracking Error Offset Adjustment 1

<b>Purpose :</b> To adjust the offset of the tracking pre-amp to zero.	
<b>Symptoms of Mal-adjustment :</b> Track search NG, Carriage runaway, Poor playability.	
<b>Measuring Equipment / Jig</b>	DC V Meter
<b>Measuring Point</b>	TEY
<b>Test Disc, Mode</b>	TEST MODE
<b>Adjustment Point</b>	VR1001(TE OFFSET VR)

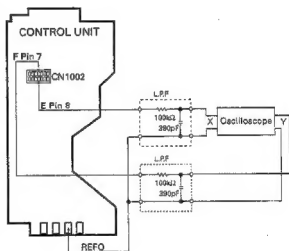


### Adjustment Procedure

- Switch the regulator on.  
Select Focus EQ check in Focus mode by pressing key MA. And the indication 00 will change to 02.  
This mode makes the laser turned off.
- Using VR1001, adjust TEY to  $0 \pm 25\text{mV}$  w.r.t. REFO.

## 2 Grating Check / Adjustment 1

<b>Purpose :</b> To check that the PU grating is correctly aligned after the PU unit has been replaced.	
<b>Symptoms of Mal-adjustment :</b> Unable to play disc, track skip during search, search NG.	
<b>Measuring Equipment / Jig</b>	Oscilloscope, Two L.P.F., Clock Driver
<b>Measuring Point</b>	E, F
<b>Test Disc, Mode</b>	ABEX TCD-784 (or SONY TYPE 4), TEST MODE
<b>Adjustment Point</b>	Grating hole

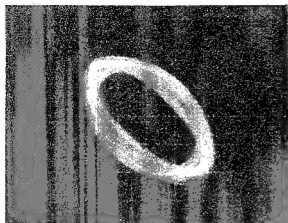


### Adjustment Procedure

- Load disc and switch regulator on.
- Position the PU in the center of the disc using the  $\triangleright$  &  $\triangleleft$  keys.
- Press key 3 to close focus and press once more to close spindle.
- Referring to the photographs given check that the grating is within  $\pm 45^\circ$ . If not, it should be possible to make a fine adjustment to the grating by slowly tuning the grating screw. If, however during the adjustment the lissajous figure is seen to "FLIP" then the null point must be found and the adjustment made from there(see next section).



Lissajous figure (AC input)  
Horizontal axis E 10mV/div.  
Vertical axis F 10mV/div.



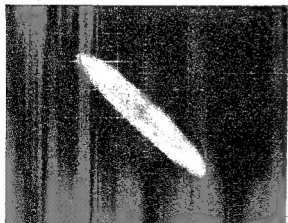
60°=NG

Waveform 1



45°=OK  
(Limit)

Waveform 2

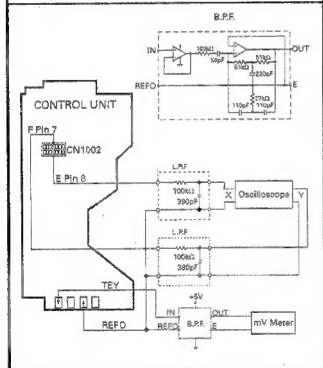


0°=BEST  
(Doesn't become  
a single line due  
to eccentricity)

Waveform 3

### 3 Grating Adjustment 2

<b>Purpose :</b>	This needs to be done if the previous adjustment was unsuccessful.
<b>Symptoms of Mal-adjustment :</b>	Unable to play disc, track skipping, track search NG.
<b>Measuring Equipment / Jig</b>	Oscilloscope, Grating Adjustment filter (B.P.F.), mV Meter, Two L.P.F., Clock Driver
<b>Measuring Point</b>	TEY, E, F
<b>Test Disc , Mode</b>	ABEX TCD-784 (or SONY TYPE 4), TEST MODE
<b>Adjustment Point</b>	Grating hole

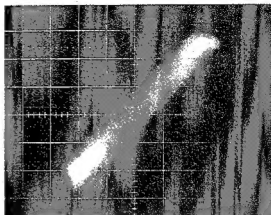


#### Adjustment Procedure

1. Load disc and switch regulator on.
2. Position the PU unit in the center of the disc using the  $\triangleright$  &  $\triangleleft$  keys.
3. Press key 3 to close focus and press once more to close spindle.
4. While monitoring the output of the B.P.F. connected to TEY, slowly turn the grating screw. The output voltage should pass through many minimums; search for the minimum which is clearly smaller than the rest - this is the "null point", where the E & F sub-beams are lined up with the tracks on the disc.
5. From this null point, turn the grating screw clockwise (as seen from the underside of the PU unit) until the lissajous waveform is a single line (or close as possible) as shown in the photograph.

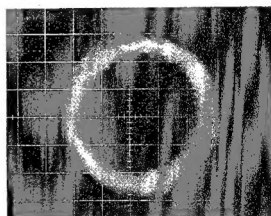
Lissajous figure (AC input)  
Horizontal axis E 10mV/div.  
Vertical axis F 10mV/div.

Null Point=180°



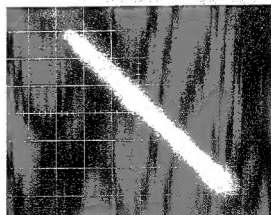
Waveform 4

"Rough" adjustment=90°



Waveform 5

Final adjustment=0°

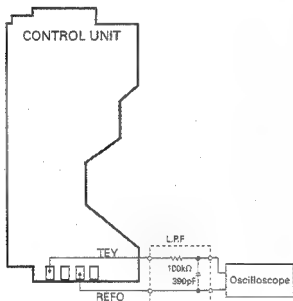


Waveform 6

## 4 Tracking Balance Adjustment 1

- Purpose :**  
To equate the sensitivity of the F channel to that of the E channel.
- Symptoms of Mal-adjustment :**  
Track search NG, Poor playability carriage runaway.

<b>Measuring Equipment / Jig</b>	· Oscilloscope, L.P.F.
<b>Measuring Point</b>	· TEY
<b>Test Disc, Mode</b>	· ABEX TCD-784 (or SONY TYPE 4), TEST MODE
<b>Adjustment Point</b>	· VR1002 (T.BAL VR)

**Adjustment Procedure**

1. Load disc and switch the regulator on.
2. Position the PU unit in the center of the disc using the  $\triangleright$  &  $\triangleleft$  keys.
3. Close focus by pressing key 3.
4. Observing the TEY waveform on the oscilloscope, adjust VR1002 until the positive and negative halves have the same amplitude (see waveform 7-9).

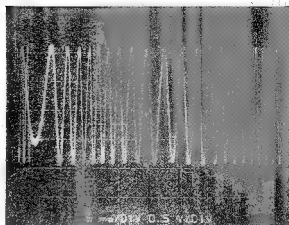
**Check**

After adjustment the TEY waveform should have an amplitude of  $1.5 \pm 0.65$  Vpp.  
(ABEX TCD-784 or SONY TYPE 4)  
(Providing focus bias is OK)

DC Mode  
0.5V/div.  
5ms/div.

-5% NG

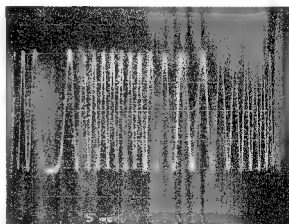
REFO —



Waveform 7

±0% OK

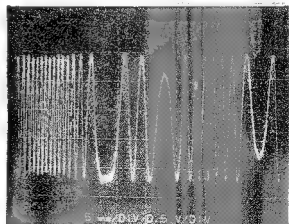
REFO —



Waveform 8

-5% NG

REFO —



Waveform 9

## 5 Focus Bias Adjustment

### Purpose :

To adjust the focus servo reference so that the RF waveform is an optimum.

### Symptoms of Mal-adjustment :

Difficulty in closing focus, poor playability.

### Measuring

#### Equipment / Jig

#### Measuring Point

#### Test Disc, Mode

#### Adjustment Point

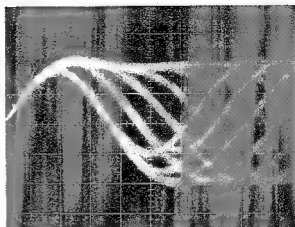
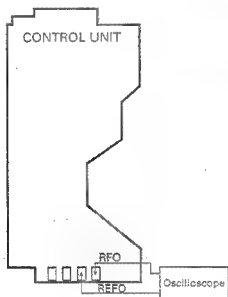
· Oscilloscope

· RFO

· ABEX TCD-784 (or SONY TYPE 4),

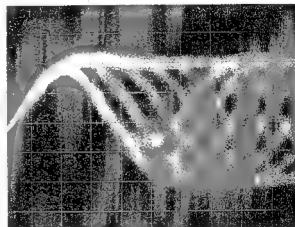
NORMAL MODE

· VR1003 (FE BIAS VR)



OK

Waveform 10



NG

AC Mode Before adjustment

Waveform 11

### Adjustment Procedure

1. Play track number 18.

2. Adjust VR1003 so that the RFO waveform amplitude is a maximum and eye pattern is optimum.

### Check

After adjustment the RFO waveform should have an amplitude of  $1.7 \pm 0.65$  Vpp.

(ABEX TCD-784 or SONY TYPE 4)

# 6 RFO Offset Adjustment

## Purpose

To adjust the RFO waveform offset to an optimum.

## Symptoms of Mal-adjustment

Difficulty in closing focus, poor playability.

## Measuring

Equipment / Jig

Measuring Point

Test Disc Mode

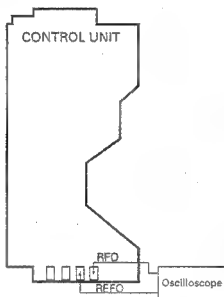
Adjustment Point

Oscilloscope

RFO

ABEX TCD-784 (or SONY TYPE 4),  
NORMAL MODE

VR1004 (RFO OFFSET VR)



## Adjustment Procedure

1. Play track number 18.
2. Adjust VR1004 so that the peak value of the upper envelope of the RFO waveform is at +1.1VDC w.r.t. REFO (See waveform 12-14).

DC Mode

0.2V/div.

0.5μs/div.

+100mV NG

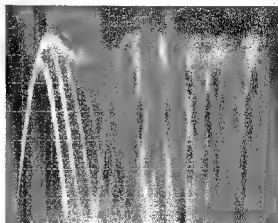


Waveform 12

OK

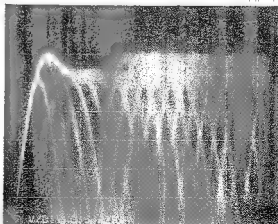
1.1V

REFO



Waveform 13

-100mV NG



Waveform 14

## 7 Tracking Error Offset Adjustment 2

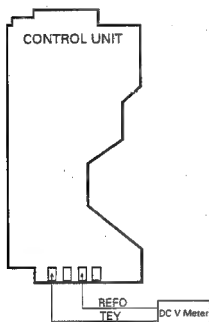
**Purpose :**

To check the offset of the tracking pre-amp is zero and adjust if necessary.

**Symptoms of Mal-adjustment :**

Track search NG, Carriage runaway, Poor playability.

Measuring Equipment / Jig	DC V Meter
Measuring Point	TEY
Test Disc, Mode	TEST MODE
Adjustment Point	VR1001 (TE OFFSET VR)

**Adjustment Procedure**

- Switch the regulator on.  
Select Focus EQ check In Focus mode by pressing key MA. And the indication 00 will change to 02.  
This mode makes the laser turned off.
- Using VR1001, adjust TEY to  $0 \pm 25\text{mV}$  w.r.t. REFO.

## 8 Tracking Balance Adjustment 2

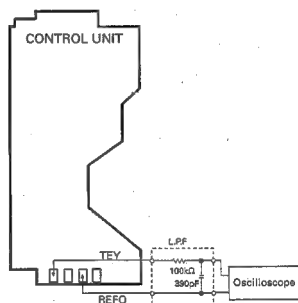
**Purpose :**

To equate the sensitivity of the F channel to that of the E channel. This needs only be done if the TE OFFSET volume was re-adjusted in the previous step.

**Symptoms of Mal-adjustment:**

Track search NG, Poor playability, carriage runaway.

Measuring Equipment / Jig	Oscilloscope, L.P.F.
Measuring Point	TEY
Test Disc, Mode	ABEX TCD-784 (or SONY TYPE 4), TEST MODE
Adjustment Point	VR1002 (T.BAL VR)

**Adjustment Procedure**

- Load disc and switch the regulator on.
- Position the PU unit in the center of the disc using the  $\triangleright$  &  $\triangleleft$  keys.
- Close focus by pressing key 3.
- Observing the TEY waveform on the oscilloscope, adjust VR1002 until the positive and negative halves have the same amplitude (See waveform 7-9).

**Check**

After adjustment the TEY waveform should have an amplitude of  $1.5 \pm 0.65 \text{ Vpp}$ .  
(ABEX TCD-784 or SONY TYPE 4)

## 4.2 TUNER SECTION

### ● Connection Diagram

**NOTE:**

Select C1 so that total capacity of 80pF is attained from the direction of the receiver jack.

**Z:** Output impedance of SSG.

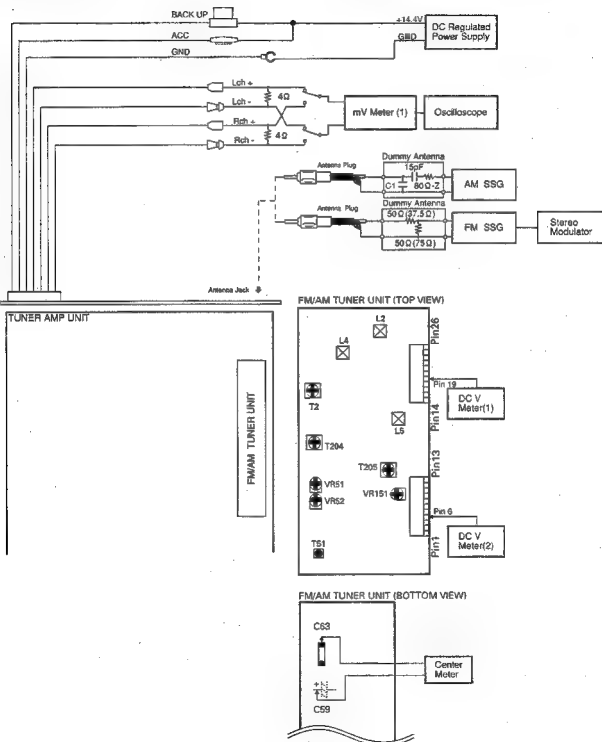


Fig.6

## AM ADJUSTMENT

	No.	AM SSG(400Hz 30%)		Displayed Frequency(kHz)	Adjustment Point	Adjustment Method (Switch Position)
		Frequency(kHz)	Level(dB $\mu$ V)			
IF	1	1000	20	1000	T204,T205	mV Meter(1) : Maximum

## FM ADJUSTMENT

Modulation M: MONO MOD., 400Hz 100%(75kHz Dev.)

S: STEREO MOD., 1kHz, L or R=100%(67.5kHz $\pm$ 7.5kHz Dev.)

NOTE: Before proceeding to further adjustments after switching power ON, let the tuner run for ten minutes to allow the circuits to stabilize.

	No.	FM SSG		Displayed Frequency(MHz)	Adjustment Point	Adjustment Method (Switch Position)
		Frequency(MHz)	Level(dBf)			
TUN Volt	1	107.9 M	65	107.9	L5	DC V Meter(1) : 6.5V $\pm$ 0.1V
IF	1	98.1 M	65	98.1	T51	Center Meter : 0
ANT, RF	1	98.1 M	5	98.1	L2, L4	mV Meter(1) : Maximum
IFT	1	98.1 M	10	98.1	T2	mV Meter(1) : Maximum (STEREO MODE)
Soft Mute	1	98.1 M	65	98.1	*****	mV Meter(1) : A (STEREO MODE)
	2	98.1 M	15	98.1	VR52	mV Meter(1) : A-3dB
ARC	1	98.1 S	40	98.1	VR151	mV Meter(1) : Separation 5dB
SD	1	98.1 S	22	98.1	VR51	DC V Meter(2) : Approx. 5V



## 5. ERROR NUMBERS AND NEW TEST MODE

### ● Error Number Indication

If the CD should fail to operate or if an error has taken place during operation the player will enter into the error mode, and the cause of the error will be numerically indicated.

This is aimed at assisting in analysis or repair.

#### (1) Examples of Display

· E- XX

#### (2) Error Codes

Error Code	Classification	Description	Cause/Detail
10	ELECTRIC	Carriage home failure	Carriage doesn't move to or from the innermost position → Home switch failed and/or carriage immobile
11	ELECTRIC	Focus failure	Focus failed → Defects, disc upside-down, severe vibration
12	ELECTRIC	Spindle lock failure Subcode failure	Spindle failed to lock or subcode unreadable → Spindle defective, defect, severe vibration
14	ELECTRIC	Mirror failure	Unrecorded CD-R The disc is upside-down, defects, vibration
17	ELECTRIC	Set up failure	AGC protect failed → Defects, disc upside-down, severe vibration
30	ELECTRIC	Search time out	Failed to reach target address → Carriage/tracking defective and/or defects
A0	SYSTEM	Power failure	Power overvoltage or short circuit detected → Switching transistor defective and/or power abnormal

### ● New Test Mode (aging operation and setup analysis)

The single CD player plays in normal mode. After being set up, it will display FOK (focus), LOCK (spindle), subcode, sound skip, protection against a mechanical error or the like, occurrence of an error, cause and time of an expiry, if any, (and disk number)

During the setup, the CD software operation status (internal RAM and C-point) is displayed.

#### (1) How to enter NEW TEST Mode

See the test mode flow chart Page 5.

## (2) Relations of keys between TEST and NEW TEST Modes

Keys	Test Mode		New Test Mode	
	Regulator OFF	Regulator ON	PLAY in progress	Error Occurred, Protection Activated
BAND	Regulator ON	Regulator OFF	—	Time of occurrence / cause of error select
>	—	FWD-Kick	TRACK UP / FF	—
<	—	REV-Kick	TRACK DOWN / REV	—
1	—	Tracking close	SCAN	—
2	—	Tracking open	MODE	—
3	—	Focus close	—	—
MA	To New Test Mode	Focus Mode Select	AUTO/MANU	TRACK No. / time of occurrence select

Operations, such as EJECT, CD ON/OFF, etc. are performed normally

## (3) Error Cause (Error Number) Code

Error Code	Classification	Mode	Description	Cause	Detail
40	ELECTRIC	PLAY	FOK=L	Put out of focus	Scratch, Stain, Vibration, Servo defect, etc...
41	ELECTRIC	PLAY	LOCK=L 100ms	Spindle unlock	
42	ELECTRIC	PLAY	Subcode unacceptable 500ms	Failed to read subcode	
43	ELECTRIC	PLAY	Sound skipped	Last address memory operated	

## (4) Indicating an Operation Status During Setup

Status No.	Description	Protection operation
01	Carriage home mode started	None
02	Carriage moving inwards	10-second time out, Home switch failed
03	Carriage moving outwards	10-second time out, Home switch failed
05	Carriage moving outwards	None
11	Setup started	None
12	Spindle turn/Focus search started	None
13	Waiting for focus closure (XSI=L)	Failure to close focus
10, 14	Waiting for focus closure (FOK=H)	Failure to close focus
15, 16, 17	Focus closed, Tracking open	Focus disrupted
18	During focus AGC Subcode waiting	Focus disrupted
19	During tracking AGC	Disrupted focus
20	Waiting for MIRR, LOCK or subcode read Carriage closed, SPINDLE=ADAPTIVE	Focus disrupted, MIRR NG, Failure to lock, Failed to read subcode

## 5) Example of Display.

•SET UP in progress(When manual)

Min	Sec
11	11

•Operation (PLAY, SEARCH, etc.) in progress perfectly identical with that in the normal mode.

•Protection/Error upon occurrence

(a) Error number indicated

E-xx
------

← Select the display with the BAND key.

(b) Track number and absolute time indicated

TRNo.
10

← Select the display with the MA key.

Min	Sec
40	05

## ● ICs

## ● Pin Functions (PD4570A, PD4582A)

Pin No.	Pin Name	I/O	I/O Format	Function and Operation
1	DSENS	I		Grille detach sense
2,3	NC			Not used
4	AVSS			A/D GND
5	VCAOUT	O		Sub woofer volume control
6	NC			Not used
7	AVREF1	I		D/A converter reference voltage
8	KYDT	I		Key and display data input
9	DPDT	O	C	Key and display data output
10	XRST	O	C	CD LSI reset output
11	SPMPX0	O	C	Spectrum analyzer level input select 0
12	SPMPX1	O	C	Spectrum analyzer level input select 1
13	SPMPX2	O	C	Spectrum analyzer level input select 2
14	XAO	O	C	CD LSI data discernment control signal output
15	XSTB	O	C	CD LSI strobe output
16	XSI	I		LSI serial data input
17	XSO	O	C	LSI serial data output
18	XSCK	O	C	LSI serial clock output
19	CONT	O	C	Servo driver power supply control
20	LOAD	O	C	Loading motor LOAD control
21	EJET	O	C	Loading motor EJECT control
22	CD6VON	O	C	CD +5V power supply control output
23	NC			Not used
24	CDMUTE	O	C	CD mute output
25	NC			Not used
26	VDCONT	O	C	VD control output
27	FOK	I		FOK signal input
28	MIRR	I		Mirror detector input
29	LOCK	I		Spindle lock detector input
30	CLAMP	I		Disc clamp sense input
31	HOME	I		Home position detector input
32	NC			Not used
33	VSS			GND
34	VDSNS	I		VD over voltage sense input
35	NC			Not used
36	SUBW0	O	N	Sub woofer cut off frequency select 0
37	SUBW1	O	N	Sub woofer cut off frequency select 1
38,39	NC			Not used
40	TUNPW	O	C	Tuner power control output
41	SYSPW	O	C	Audio power supply control output
42	VLCDPW	O	C	Back light power supply output
43	VSTGE	O	C	Graphic equalizer strobe output
44	SWVDD	O	C	Grille power supply control output
45	POWER	O	C	System power control output
46	VDT	O	C	E-VOL/graphic equalizer serial data output
47	VSTEV	O	C	E-VOL strobe output
48	VCK	O	C	E-VOL/graphic equalizer data clock
49	PCL	O	C	Clock adjustment output
50	FM/AM	O	C	FM/AM power select output
51	MONO	O	C	Forced mono output
52	SIMK0	I		Model select input 0
53	SIMK1	I		Model select input 1
54,55	NC			Not used
56	MUTE	O	C	Mute output
57,58	NC			Not used
59	SD	I		SD input

Pin No.	Pin Name	I/O	I/O Format	Function and Operation
60	RESET	I		Reset
61	NC			Not used
62	BSENS	I		Back up power sense input
63	ASENS	I		ACC power sense input
64	PDI	I		Data input from PLL IC
65	PDO	O	C	Data output for PLL IC
66	PCK	O	C	Serial clock output for PLL IC
67	PCE	O	C	Chip enable output for PLL IC
68	VDD			Power supply
69	X2			Crystal oscillator connection pin
70	X1			Crystal oscillator connection pin
71	IC			Connect to VSS
72	XT2			Crystal oscillator connection pin
73	TESTIN	I		Test program start input
74	AVDD			Positive power supply terminal for analog circuit
75	AVREFO	I		Reference voltage input for A/D converter
76	SL	I		SD level input from tuner
77	TEMP	I		Temperature detector
78	DINC	I		Disc insert sense input
79	EJTD	I		Disc eject position sense input
80	LEVEL	I		Level/spectrum analyzer display level input

I/O Format	Meaning
C	C MOS
N	N channel open drain

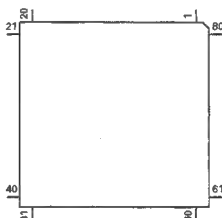
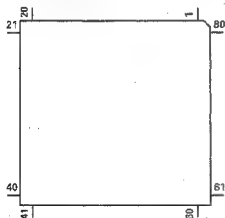
IC's marked by\* are MOS type.

Be careful in handling them because they are very liable to be damaged by electrostatic induction.

\*PD4570A(DEH-50DH)

\*PD4582A(DEH-40DH)

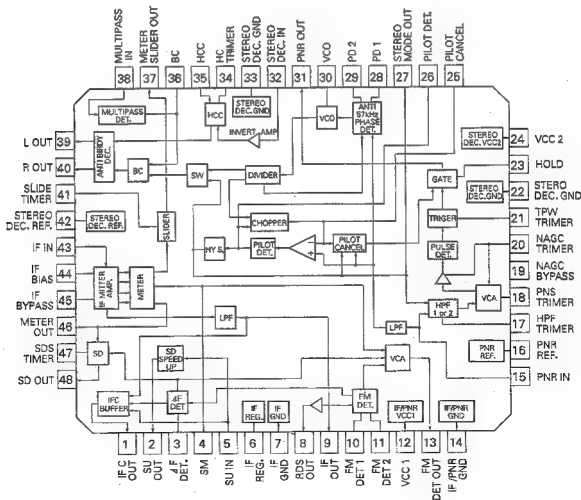
\*PD6155A



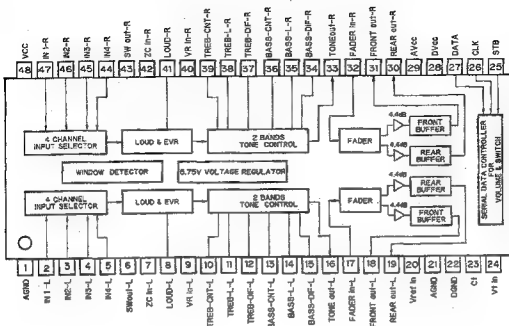
## ● Pin Functions (PD6155A)

Pin No.	Pin Name	I/O	Function and Operation
1	VSS		GND
2	X1		Crystal oscillator connection pin
3	X0		Crystal oscillator connection pin
4	NC		Not used
5,6	MOD1,0	I	Connect to GND
7	NC		Not used
8	KYDT	O	Display/key data output
9	DPDT	I	Display/key data input
10	REMIN	I	Remote control pulse input
11,12	NC		Not used
13-16	KD4-KD1	I	Key data input
17-21	KS6-KS2	O	Key strobe output
22	NC		Not used
23	VDD		VDD
24-73	SEG0-49	O	LCD segment output
74-77	COM3-0	O	LCD common output
78	VLCD	I	LCD voltage input
79,80	V2,V1		Power supply terminal

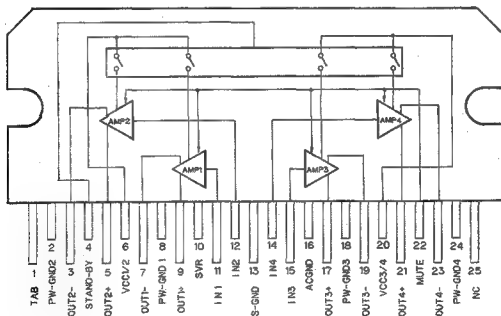
PA2022B



SN761025DL



PAL003A



## ● Pin Functions(UPD63700GF1)

Pin No.	Pin Name	I/O	Function and Operation
1	D.GND		Logic circuit GND
2	RFOK	O	RFOK detection signal output terminal
3	MIRR	O	MIRR detection signal output terminal
4	TBC	I	Tracking filter bank switching terminal
5	HOLD	I	Hold control signal input terminal
6	D.VDD		VDD for logic circuit
7	RST	I	System reset
8	AO	I	Control signal distinguishing data from microcomputer
9	STB	I	Signal latching serial data inside LSI
10	SCR	I	Clock input terminal for serial data input and output
11	SO	O	Serial data and status signal output
12	SI	I	Serial data input
13	TM2	I	Double speed playback control terminal
14	D.GND		Logic circuit GND
15	TEST	I	Test terminal
16	STBY	I	Stand-by input terminal
17	CTLV	I	Control terminal for clock generation VCO used by digital PLL in double speed playback mode
18	POUT	O	Output terminal for phase comparison between EFM signal and bit clock
19	D.GND		Logic circuit GND
20	VCO	I	Inverter input
21	VCO	O	Inverter output
22	D.VDD		VDD for logic circuit
23	PLCK	O	Bit clock monitor terminal
24	LOCK	O	"H" when synchronization signal and frame counter output coincide at EFM demodulator
25	WFCK	O	Signal issuing one-frame period by bit clock dividing signal
26	RFCK	O	Oscillation clock divider signal, output pin for signal giving 1-frame sync.
27	C4M	O	Output terminal for signal having four the frequency of LRCK
28	C16M	O	Oscillation clock output terminal
29	D.GND		Logic circuit GND
30	XTAL	I	Oscillation continuation terminal
31	XTAL	O	Oscillation continuation terminal
32	D.VDD		VDD for logic circuit
33	SCKO	O	Clock output terminal for audio serial data
34	LRCK	O	Signal distinguishing between left and right channel DOUT terminal output
35	DOUT	O	Serial audio data output terminal
36	TX	O	Digital audio interface data output terminal
37	FLAG	O	Flag signal indicating that the current audio data output of incorrectable data
38	EMPH	O	Emphasis information output
39	WDCK	O	Output terminal for signal having double the frequency of LRCK
40	C2D3	O	Output terminal indicating C2 error correction status
41	SFSY	O	Signal indicating subcode one-frame synchronization
42	SBSY	O	Signal indicating head of subcode block
43	SBSO	O	Subcode data output terminal
44	SBCK	I	Subcode data read clock input terminal
45	D.GND		Logic circuit GND
46,47	C1D1,C1D2	O	Output terminal indicating C1 error correction status
48,49	C2D1,C2D2	O	Output terminal indicating C2 error correction status
50	T4	I	Selects between focus and tracking modulation mode
51	T5	I	Selects motor PWM output mode
52	T6	I	Sets focus PWM output mode
53	T7	I	Sets tracking PWM output mode
54	D.VDD		VDD for logic circuit
55	MRD	O	PWM negative output terminal for the spindle loop filter
56	MED	O	PWM positive output terminal for the spindle loop filter
57	SRD	O	PWM negative output terminal for the thread loop filter
58	SFD	O	PWM positive output terminal for the thread loop filter

Pin No.	Pin Name	I/O	Function and Operation
59	D.GND		Logic circuit GND
60	TRD	O	PWM negative output terminal for the tracking loop filter
61	TFD	O	PWM positive output terminal for the tracking loop filter
62	FRD	O	PWM negative output terminal for the focus loop filter
63	FFD	O	PWM positive output terminal for the focus loop filter
64	D.VDD		VDD for logic circuit
65	OUTSEL	I	Sets PWM output mode for the motor system
66	TEC1	I	Tracking error input terminal
67	TEC0	I	Tracking error input terminal
68	A.VDD		VDD for analog circuit
69,70	VR2,VR1	I	A/D converter input
71	TE	I	Tracking error input terminal
72	FE	I	Focus error input terminal
73	RFB	I	RFB signal input terminal
74	RFP	I	RFP signal input terminal
75	A.GND		Analog circuit GND
76	REFOUT	O	A/D converter midpoint voltage output terminal inside LSI
77	RFI	I	RF signal input terminal for EFM comparator
78	ASI	I	Level comparing input for RF signal comparison
79	EFM	O	EFM signal output terminal
80	A.VDD		VDD for analog circuit

\*UPD63700GF1





## 6. ELECTRICAL PARTS LIST

## NOTE:

- Parts whose parts numbers are omitted are subject to being not supplied.
- The part numbers shown below indicate chip components.

Chip Resistor

RS1/0S0000J, RS1/00S000J

Chip Capacitor (except for COS.....)

CKS....., CCS....., CSZS.....

====Circuit Symbol & No. Part Name=====	Part No.	====Circuit Symbol & No. Part Name=====	Part No.
Unit Number : CWX1751(DEH-50DH)		RESISTORS	
Unit Name : Tuner Amp Unit			
MISCELLANEOUS			
IC 451	SN76102SD	R 449 450	RS1/10S000J
IC 501	LC72140M	R 453 454	RD14PS182JL
IC 551	PALD03A	R 455 456	RS1/10S362J
IC 501	PD4570A	R 457 458	RS1/10S272J
IC 707	NJNM558MD	R 459 460	RS1/10S181J
IC 851	TA2080S	R 461 462 851 852	RS1/10S101J
IC 951	PAJ001A	R 463 464 507 559 562	RS1/10S103J
IC 971	TA8214K	R 465 466 467 508 512 518 534 604 605 608	RS1/10S472J
Q 501	2SC3295	R 502	RS1/10S333J
Q 505 504	2SC2712	R 503 509 530 509 612 984	RS1/10S472J
Q 503	2SC3096	R 504 511 513 517 518 519 520 621 623 636	RS1/10S222J
Q 505	2SK208	R 505 953	RS1/10S223J
Q 508	2SC2712	R 506	RS1/10S221J
Q 509	2SK208	R 510	RS1/10S123J
■ 551 756	UN2213	R 514 515 521 522 610 622 624 627 630 631	RS1/10S473J
Q 801	2SB1238	R 523	RS1/10S473J
Q 802 952	UN2211	■ 524	RS1/10S101J
Q 803 951	2SB1238	■ 525	RS1/10S332J
Q 811 812	2SD601A	R 526 560	RS1/10S331J
Q 813	2SB709A	R 627	■ 1/10S821J
Q 753 754	2SD601A	R 528	RS1/10S680J
Q 755	UN2111	R 529 533 536 651 652 739	RS1/10S102J
Q 871	2SD2396	■ 531 561 962	RS1/10S103J
Q 872	2SB1236	R 532	RS1/10S182J
Q 873 875	DT114EK	R 538 539 540 541 549 740	RS1/10S102J
Q 974	DTA114EK	R 545 546	RS1/10S102J
Q 981	2SD2396	R 548	RS1/10S330J
Q 982	UN2111	R 601 602 603 973	RD14PS472JL
Q 983	UN2211	■ 607 635 701 702	RS1/10S473J
D 501	MA151WK-MT	R 608	RD14PS221JL
D 504	MA3027H	R 610	RS1/10S222J
D 505	MA3027H	R 611	RD14PS221JL
D 501 502 603 701	MA153-MC	R 613 955	RS1/10S472J
D 611	MA151WA-MN	R 615	RS1/10S222J
D 709 952 953	1SS133	R 616	RS1/10S222J
D 751	MA151WA-MN	R 617	RS1/10S103J
D 811 952 953 954 961	ERA15-02VH	R 626 952	RS1/10S000J
D 871	HZS8L2	R 629	RS1/10S472JL
D 972	ERA82-004VH	R 632 956	RD14PS102JL
D 981	RB100AVH	R 633	RS1/10S682J
■ 982	HZS9LC3	R 634 955	RS1/10S683J
L 501 502	LAU220K	R 637	RS1/10S222J
L 601 621	LAU470K	R 638 639	RS1/10S473J
L 951	CTH1075	R 640	RS1/10S183J
L 981	CTF1335	R 653	RA4C681J
X 501	Crystal Resonator	■ 661	RA4C102J
X 621	Crystal Resonator	R 665 666	RA3C102J
	FM/AM Tuner Unit	R 742 744	RS1/10S681J
	Equalizer Unit	R 743	RS1/10S563J
	CWX1771	R 745	RS1/10S473J
		R 769 770	RS1/10S153J
		R 771 772	RS1/10S821J
		R 773 774 853 854 954 967	RS1/10S332J
		R 855 856	RS1/10S223J
			RS1/10S242J

## Circuit Symbol &amp; No. Part Name

## Part No.

R 951  
R 956  
R 961  
R 963  
R 964

R 970  
R 971  
R 972  
R 974  
R 981

R 982  
R 983

## CAPACITORS

C 451 452 487 775 776  
C 453 454  
C 455 456 850 857  
C 487 482 558 621 954  
C 458 601 602 622

C 458 480 485 486 481 482  
C 481 482  
C 483 484  
C 487 488  
C 489 470

C 471 472 508  
C 473 474  
C 475 476  
C 477 478 501 505  
C 488

C 489 504 510 953  
C 490 955  
C 491  
C 502 604 970 971 982  
C 503

C 506 507  
C 508 512  
C 511  
C 513  
C 514 523 952

0.047  $\mu$ F

C 515  
C 516 603  
C 517  
C 518 519  
C 520

4.7  $\mu$ F/16V

C 551 552 553 554  
C 555  
C 556  
C 557 558 552 553 554 976  
C 567

4700  $\mu$ F/16V

C 623 624  
C 625 983  
C 701  
C 728 729 989  
C 730

C 731  
C 777 778  
C 851  
C 962  
C 963 973

1000  $\mu$ F/16V

C 964  
C 966  
C 972  
C 974  
C 975

470  $\mu$ F/16V

C 977  
C 981  
C 984 985

RD14PS513JL  
RS110S272J  
RS110S273J  
RS110S282J  
RS110S363J

RS110S180J  
RS110S681J  
RS110S221J  
RD14PS242JL  
RD14PS471JL

RD14PS221JL  
RS110S392J

CEA100M15LL  
CEAS010M50  
CEAS100M16  
CKSQYB104K25  
CKSQYB104K25

CEA100M16NPLL  
CKSQYB822K50  
CEA010M50LL  
CKSQYB152K50  
CKSQYB183K25

CKSQYB102K50  
CKSQYB333K50  
CEA2R2M50NPLL  
CKSQYB101J50  
CKSQYB104K25

CKSQYB103K50  
CEA2R2M50LL  
CEA470M16LL  
CKSQYB473K50  
CKSQYB102K50

CKSQYB222K50  
CKSQYB101J50  
CKSQYB881J50  
CCG1006  
CKSQYB103K50

CFTNA474J50  
CEAS4R7M25  
CKSQYB473K50  
CKSQYB120J50  
CCH1186

CEA2R2M50LL  
CCH1187  
CEAS220M16  
CEAS010M50  
CEAS330M10

CKSQYB150J50  
CKSQYB102K50  
CEA4R7M35LL  
CEAS101M10  
CKSQYB391J50

CEAS100M16  
CKSQYB221J50  
CEA010M50LL  
CEASR22M50  
CCH1185

CEAS220M10  
CKSQYB102K50  
CEA010M16  
CCH1183  
CEAS470M16

CEAS221M10  
CEAS331M16  
CKSQYB222K50

Unit Number : CWX1752(DEH-40DH)  
Unit Name : Tuner Amp Unit

## MISCELLANEOUS

IC 451  
IC 501  
IC 551  
IC 601  
IC 707

IC 961  
IC 971  
II 501  
Q 502 504  
II 503

Q 505  
Q 508  
Q 509  
Q 551 756  
Q 601

Q 602 952  
Q 603 951  
Q 611 612  
Q 613  
Q 753 754

Q 755  
Q 971  
Q 972  
Q 973 975  
Q 974

Q 981  
Q 982  
Q 983  
D 501  
D 504

D 505  
D 601 602 603 701  
D 611  
D 709 982 983  
II 751

II 951 952 953 954 961  
II 971  
D 972  
II 981  
II 982

L 501 502  
L 601 621  
L 951  
L 981  
X 501

Ferri-Inductor  
Ferri-Inductor  
Choke Coil  
Inductor  
Crystal Resonator

X 621

Crystal Resonator  
FM/AM Tuner Unit  
Equalizer Unit

## RESISTORS

R 449 450 625 747  
R 453 454  
R 455 456  
R 457 458  
R 459 460

R 461 462  
II 463 464 507 559 562  
II 465 466 467 508 512 516 534 604 605 606  
R 502  
R 503 509 530 609 612 984

R 504 511 513 517 518 519 520 621 623 636  
R 505 953  
R 506  
R 510  
R 514 515 521 522 610 622 624 630 631

## Part No.

SN761025DL  
LC72140M  
PAL003A  
PD4582A  
NJM4558MD

PAJ001A  
TA8214K  
25C3295  
25C2712  
25C3086

25K208  
25C2712  
25K208  
UN2213  
25S1236

UN3211  
25S1238  
25D601A  
25S708A  
25D601A

UN2111  
25D1859  
25S1236  
DTC114EK  
DTA114EK

25D2396  
UN2111  
UN2211  
MA151WK-MT  
MA3027H

MA3027H  
MA153-MC  
MA151WA-MN  
18S133  
MA151WA-MN

ERA15-02VH  
HZS9LB2  
ERA82-004VH  
RB100AVH  
HZS9LC3

LAU220K  
LAU470K  
CTH1075  
CTF1335  
CSS1011

CSS1023  
CWE1382  
CWX1771

RS110S90J  
RD14PS162JL  
RS110S362J  
RS110S272J  
RS110S151J

RS110S101J  
RS110S103J  
RS110S472J  
RS110S333J  
RS110S472J

RS110S222J  
RS110S223J  
RS110S221J  
RS110S123J  
RS110S473J

Circuit Symbol & No. Part Name	Part No.	Circuit Symbol & No. Part Name	Part No.
R 523	RS1/105473J	C 489 504 510 953	CKSQYB103K50
R 524	RS1/105101J	C 490 965	CEA2R2M50LL
R 525	RS1/105332J	C 491	CEA470M16LL
R 526 560	RS1/105331J	C 502 604 970 971 982	CKSQYB473K50
R 527	RS1/105621J	C 503	CKSQYB102K50
R 528	RS1/105880J	C 506 507	CKSQYB223K50
R 529 533 536 651 652 739	RS1/105102J	C 509 512	CCSQCH101J50
R 531 561 982	RS1/105103J	C 511	CCSQCH68J180
R 532	RS1/105152J	C 513	CCG1008
R 538 539 540 541 549 740	RS1/105102J	C 514 523 962	CKSQYB103K90
R 545 548	RS1/105102J	C 515	CFTNA474J50
R 548	RS1/105330J	C 516 603	CEAS4R7M25
R 601 602 603 973	RD1/4P5472JL	C 517	CKSQYB473K60
R 607 635 701 702	RS1/105473J	C 518 519	CCSQCH120J50
R 608	RD1/4P5221JL	C 520	CCCH1185
R 610	RS1/105222J	C 551 552 553 554	CEAR22M50LL
R 611	RD1/4P5221JL	C 555	CCCH1187
R 613 955	RS1/105472J	C 556	CEAS220M16
R 615	RS1/105222J	C 557 566 976	CEAS010M50
R 616	RS1/105222J	C 567	CEAS330M10
R 617	RS1/105103J	C 623 624	CCSQCH180J50
R 626 952	RS1/1050R0J	C 625 983	CKSQYB102K50
R 629	RD1/4P5102JL	C 701	CEA4R7M35LL
R 632 956	RS1/105473J	C 728 729 969	CEAS101M10
R 633	RS1/105692J	C 730	CCSQCH39J180
R 634 985	RS1/105683J	C 731	CEAS100M16
R 637	RS1/105222J	C 777 778	CCSQCH221J50
II 638 639	RS1/105473J	C 962	CEASR22M50
R 640	RS1/105183J	C 963 973	CCCH1185
R 653	RA4C681J	C 964	CEAS220M10
II 657	RA4C102J	C 966	CKSQYB102K50
R 661	RA3C102J	C 972	CEAS101M16
R 665 666	RS1/105681J	C 974	CCCH1183
R 741	RS1/105104J	C 975	CEAS470M16
R 743	RS1/105103J	C 977	CEAS221M10
R 744	RS1/105104J	C 981	CEAS331M16
R 748	RS1/105153J	C 984 985	CKSQYB222K50
R 769 770	RS1/105821J	Unit Number : CWX1759/DEH-500H	
R 771 772	RS1/105332J	Unit Name : Key Board Unit	
R 773 774 854 957	RS1/105223J		
R 951	RD1/4P5513JL	MISCELLANEOUS	
R 956	RS1/105272J	IC 901	P08155A
R 961	RS1/105273J	IC 902	RFM-678CBR
R 963	RS1/105623J	D 901 902	MA153-MC
R 964	RS1/105363J	D 903	MA3056H
II 970	RS1/1051R0J	L 901	LCTB1R0K2125
II 971	RS1/105681J		
II 972	RS1/105221J	X 901	CSG1084
II 974	RD1/4P5242JL	S 901 902 903 904	CSG1081
II 981	RD1/4P5471JL	S 905 906 907 908	CSG1061
R 802	RD1/4P5221JL	S 909 910 911 912	CSG1061
II 983	RS1/105392J	S 913 914 915 916	CSG1081
CAPACITORS		S 917 918 919	CSG1061
C 453 454	CEAS010M50	IL 907 908 909 910	CEL1295
C 455 456	CEAS100M16	IL 911 912 913 914	CEL1295
C 457 492 568 621 954	CKSQYB104K25	IL 915 916	CEL1295
C 458 601 602 622	CKSQYB104K25	LCD	CAW1268
C 459 460 465 466 481 482	CEA100M16NPLL		
C 461 462	CKSQYB822K50	RESISTORS	
C 463 464	CEA010M50LL	II 901 902	RS1/8S222J
C 467 468	CKSQYB152K50	R 912	RS1/8S221J
C 469 470	CKSQYB163K25	R 918 919 923 924 925 926 927 929 930 931	RS1/8S471J
C 471 472 506	CKSQYB102K50	R 920	RS1/8S2R2J
C 473 474	CKSQYB333K50	R 922	RS1/8S470J
C 475 476	CEA2R2M50NPLL	R 932	RS1/8S471J
C 477 478 501 505	CCSQCH101J50	R 933	RS1/8S562J
C 487 775 776	CEA100M16LL	R 938	RS1/8S562J
C 488	CKSQYB104K25		

-----Circuit Symbol & No. Part Name----- Part No.

## CAPACITORS

C 901 902 903 908	CKSQYB473K50
C 904	CSZS3R3M16
C 905	CEV470M6R3
C 906 909	CKSQYB103K50

Unit Number : CWX1760(DEH-400H)

Unit Name : Key Board Unit

## MISCELLANEOUS

IC 901	PD6155A
D 901 902	MA153-MC
D 903	MA3066H
L 901	LCT81R0K2125
X 901	CSS1064

S 901 902 903 904	Switch	CSG1061
S 905 906 907 908	Switch	CSG1061
S 909 910 911 912	Switch	CSG1061
S 913 914 915 918	Switch	CSG1061
S 917 918 919	Switch	CSG1061

IL 907 908 909 910	Lamp 14V40mA	CEL1295
IL 911 912 913 914	Lamp 14V40mA	CEL1295
IL 915 916	Lamp 14V40mA LCD	CAW1272

## RESISTORS

R 901 902	RS1/RS222J
R 912	RS1/RS221J
R 918 919 923 924 925 926 927 929 930 931	RS1/RS471J
R 932	RS1/RS471J
R 933	RS1/RS682J

R 934	RS1/RS473J
R 938	RS1/RS562J

## CAPACITORS

C 901 902 903 908	CKSQYB473K50
C 904	CSZS3R3M16
C 908 909	CKSQYB103K50

Unit Number : CWX1771(DEH-500H)

Unit Name : Equalizer Unit

## MISCELLANEOUS

IC 701	M51304L
IC 702 703 704 705	NJM4558MD
IC 706	TC4051BF
Q 751 752	2SD601A
D 702 703 704 705 706 707 708	MA110-1A

## RESISTORS

R 708	RS1/10S103J
R 707	RS1/10S560J
R 708 710	RS1/16S473J
R 709	RS1/16S682J
R 711	RS1/10S124J

R 712	RS1/10S122J
R 713	RS1/10S303J
R 714 717 723	RS1/16S134J
R 715	RS1/16S303J
R 716 722 728	RS1/10S152J

R 718 724	RS1/10S132J
R 719 725	RS1/10S333J
R 720 726	RS1/16S154J
R 721 727	RS1/10S293J
R 729	RS1/16S304J

R 730	RS1/10S302J
R 731	RS1/10S753J
R 732	RS1/10S104J
R 733 735 738	RS1/16S104J
R 734 736 737	RS1/16S104J

-----Circuit Symbol & No. Part Name----- Part No.

R 741 763 764	RS1/10S223J
R 758 780	RS1/10S821J
R 761 762	RS1/16S323J

## CAPACITORS

C 445	CKSRVB103K50
II 702	CEA330M10LL
C 703	CEA101M10LL
C 704	CKSQYB102K50
C 705	CEAR47M50LL

C 708	CEALNP220M6R3
C 707 708	CKSQYB152K50
C 709 710	CKSQYB332K50
C 711 712	CKSQYB123K50
C 713 714	CKSQYB223K50

C 715 716	CKSQYB473K50
C 717 718 719 720	CKSQYB823K26
C 721 722 723 724 725 726 727	CSZS2R2M16
C 731	CKSRVB103K50
C 768 768	CEA100M16LL

C 769 770	CSCQCH221J50
-----------	--------------

Unit Number : CWE1362

Unit Name : FM/AM Tuner Unit

## MISCELLANEOUS

IC 1	PA2021B
IC 2	PA2022B
Q 1	3SK263
Q 2	2SC2712
Q 3	DTC124EU

Q 61	DTC124TU
Q 62	2SC40B8
Q 190	2SA1886
II 191 202	2SC2712
Q 201	2SK932

D 1	15V251
II 2 3 4	KV1410-F1
D 5	MA151WK
D 6 7	RD39J-SB3
II 8 201	MA167-MR

D 191	MA157-MR
D 202	MA110-1A
D 203	SVC263
L 1	LCT81R12K2125
L 2 4	CTC1108

L 3	CTC1108
L 5	CTC1107
L 51	Ferri-Inductor
L 52	Ferri-Inductor
L 201	Ferri-Inductor

L 203	Inductor 1mH
L 204	Ferri-Inductor
L 206	Inductor
L 207	Ferri-Inductor
T 2	Coil

T 51	Coil
T 204	Coil
T 205	Coil
CF II	52 201
CF 202	

X 151	Crystal Resonator
X 201	Semi-fixed 47kD(B)
VR 51	Semi-fixed 68kD(B)
VR II	Semi-fixed 10kD(B)
VR 151	

Circuit Symbol & No. Part Name	Part No.	Circuit Symbol & No. Part Name	Part No.
<b>RESISTORS</b>			
R 1 3 16 20	RS1/16S223J	C 23 56 104 162	CEA010M50LL
R 2	RS1/16S331J	C 24 100 213 236	CKSRVB223K25
R 4 14	RS1/16S563J	C 26 20 212	CEA330M10LL
R 6	RS1/16S123J	C 27	CKSRVB103K50
R 8	RS1/16S271J	C 31 73 152 153	CKSRVB333K16
R 9	RS1/16S153J	C 32 103 105 206	CKSRVB222K50
R 10 32	RS1/16S682J	C 34	CKSRVB682K50
R 11	RS1/16S474J	C 53 54	CCSRCH270J50
R 13	RS1/16S104J	C 57 64 66	CCSRCH101J50
R 15 105 217	RS1/16S503J	C 59	CEAR47M50LL
R 17 21 206	RS1/16S332J	C 81	CEAR22M50LL
R 18	RS1/16S223J	C 102 154 156 163 203 219 238	CKSRVB473K16
R 22	RS1/16S560J	C 155	CEAR88M50LL
R 31	RS1/16S391J	C 158	CEA100M16LL
R 33	RS1/16S182J	C 159	CCSRCH271J50
R 53	RS1/16S751J	C 160	CKSYB106K16
R 54	RS1/16S223J	C 164 209 210 215 220 223 225 235 239	CKSRVB102K50
R 55 102 181 209 222	RS1/16S822J	C 190	CKSRVB223K25
R 59	RS1/16S272J	C 191	CEA150M10J5
R 71	RS1/16S272J	C 201	CKSRVB222K50
R 72	RS1/16S821J	C 204	CCSRCH161J50
R 73	RS1/16S331J	C 206 221	CCSRCH880J50
R 74	RS1/16S581J	C 207	CEA470M68R3LL
R 101	RS1/16S224J	C 208	CCSRCH330J50
R 104	RS1/16S822J	C 211	CKSYB106K16
R 153 155 239	RS1/16S103J	C 214 230	CKSRVB472K50
R 154	RS1/16S123J	C 216	CCSRCH100D50
R 155	RS1/16S822J	C 217	CCSRCH221J50
R 159	RS1/16S822J	C 218	CEA47M395LL
R 157	RS1/16S562J	C 222	CCSRCH150J50
R 158	RS1/10S682J	C 224	CCSRUJ181J50
R 160 190	RS1/16S473J	C 226	CEA47M395LL
R 161	RS1/16S103J	C 228	CEAR88M50LL
R 191 207	RS1/16S226J	C 232	CCSRTH180J50
R 192	RS1/16S221J	C 233	CKSRVB332K50
R 193	RS1/16S224J	C 234	CEA220M6R3LL
R 194	RS1/16S225J	C 240	CKSRVB103K50
R 203	RS1/16S102J	Unit Number : CWX1798	
R 204 213	RS1/16S222J	Unit Name : Control Unit	
R 205	RS1/16S333J	<b>MISCELLANEOUS</b>	
R 208	RS1/16S752J	IC1001	UPC2571GS
R 214 218	RS1/16S333J	IC1201	UPD63700GF1
R 215 224	RS1/16S330J	IC1301	PA3028
R 216	RS1/16S152J	IC1302	XRAE255FP
R 220	RS1/16S100J	IC1303	NJM4558M
R 221	RS1/16S273J	IC1601	TC9288F
R 298	RS1/16S225J	IC1602	TA2063F
R 299	RS1/16S225J	IC1701	PQ05TZ61
<b>CAPACITORS</b>		Q 1001	2SB1250
C 1	CCSRCH220J50	Q 1601 1602	2SD1781K
C 2 11 19 27 29 51 52 62 63	CKSRVB103K50	1603	2SB709A
C 3	CCSRCH470J50	D 1601	MA151WA-MN
C 4	CCSRRH270J50	D 1701 1702 1703 1704	SC015-2
C 5	CCSRRH080D50	B 1801 1802	CL200/RX
C 8	CCSRRH040C50	L 1601	LCTBR39K2125
C 8	CKSRVB102K50	X 1601	Crystal Resonator
C 9	CCSRCH470J50	1801 1802	Switch/Home.Clamp
C 10	CCSRRH1000D50	VR1001	Semi-fixed 2.2kΩ(B)
C 12 13	CCSRCH1050D50	VR1002	Semi-fixed 22kΩ(B)
C 14 20 21 151 227 228	CKSRVB103K50	VR1003 1004	Semi-fixed 47kΩ(B)
C 15 55 58 101 161	CKSQVB104K16	<b>RESISTORS</b>	
C 16	CCSRCH020C50	R 1001	RS1/6S100J
C 17	CCSRRH1000D50	1002	RS1/6S120J
C 18	CCSRRH090D50	R 1003 1201 1307 1309	RS1/16S103J
		R 1004 1013 1024 1025 1311 1315 1318 1708	RS1/16S102J
		R 1005	RS1/16S823J

# DEH-500H, 400H

Circuit Symbol & No. Part Name	Part No.
R 1008	RS1/16S182J
R 1007	RS1/16S333J
R 1011 1012	RS1/16S883J
R 1014 1310	RS1/16S473J
R 1018	RS1/16S622J
R 1019	RS1/16S563J
R 1020	RS1/16S622J
R 1021	RS1/16S513J
R 1022	RS1/16S133J
R 1027	RS1/16S183J
R 1028	RS1/16S822J
R 1301 1302	RS1/16S222J
R 1303 1606 1607	RS1/16S223J
R 1304	RS1/16S123J
R 1305 1306 1705	RS1/16S332J
R 1308	RS1/16S163J
R 1314	RS1/16S0R0J
R 1317	RS1/16S473J
R 1601	RS1/16S301J
R 1604 1605	RS1/16S102J
R 1606 1609	RS1/16S162J
R 1610	RS1/16S103J
R 1601 1602	RS1/16S821J

## CAPACITORS

C 1001 1008 1010 1011 1303	CKSRYB102K50
C 1002 1606 1706	CEV101M6R3
C 1003	CKSOYB104K16
C 1004	CEV470M6R3
C 1005	CCSRCH101J50
C 1008	CKSRYB561K50
C 1007 1704	CKSYB334K16
C 1009	CCSRCH181J50
C 1013	CKSRYB103K50
C 1014	CCSRCH220J50
C 1016 1016 1017 1018 1201 1202	CKSYF105Z16
C 1021	CKSYB104K16
C 1022	CKSYB332K50
C 1023	CKSRYB561K50
C 1203	CKSRYB471K50
C 1301 1302	CKSRYF683Z25
C 1304	CKSRYB152K50
C 1305	CKSRYB271K50
C 1307 1310 1605 1608	CKSRYB103K50
C 1308	CKSRYF103Z50
C 1309	CEV470M16
C 1601	CCSRCH181J50
C 1602	CCSRCH100D50
C 1603 1604 1705	CKSYB224K16
C 1606 1607	CCSRCH080D50
C 1612	CEV220M6R3
C 1613 1614	CEV4R7M35
C 1701 1702	CCSRCH100D50
C 1703	CEV220M16

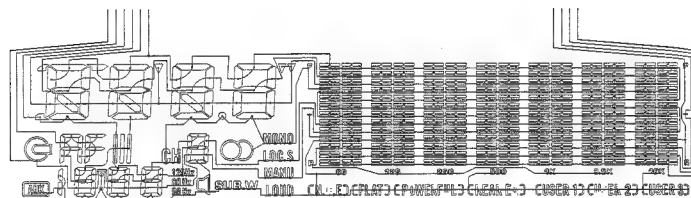
Unit Number :  
Unit Name : Detector P.C.Board

P 1 2 Photo Transistor PT4800

## Miscellaneous Parts List

M 1	PU Unit	CGY1031
M 2	Motor Unit (Spindle)	CXA5703
M 3	Motor Unit (Carriage)	CXA7150
M 3	Motor Unit (Loading)	CXA6456

● LCD (CAW1269)(DEH-50DH)  
COMMON



SEGMENT

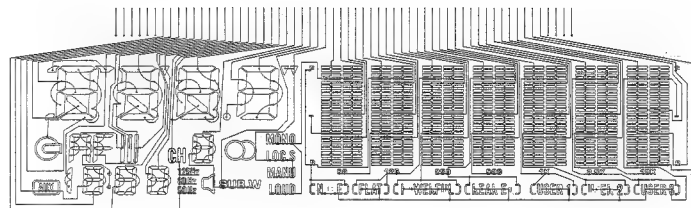
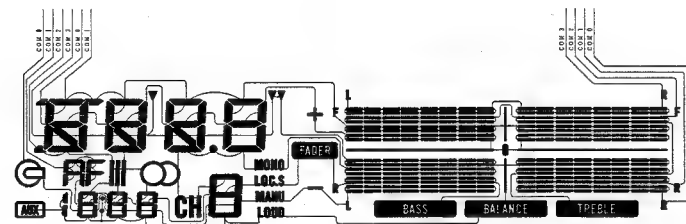


Fig.7

● LCD (CAW1272)(DEH-40DH)  
COMMON



SEGMENT

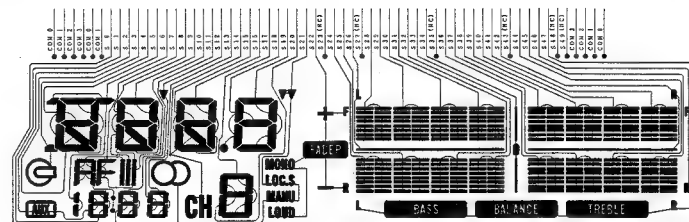


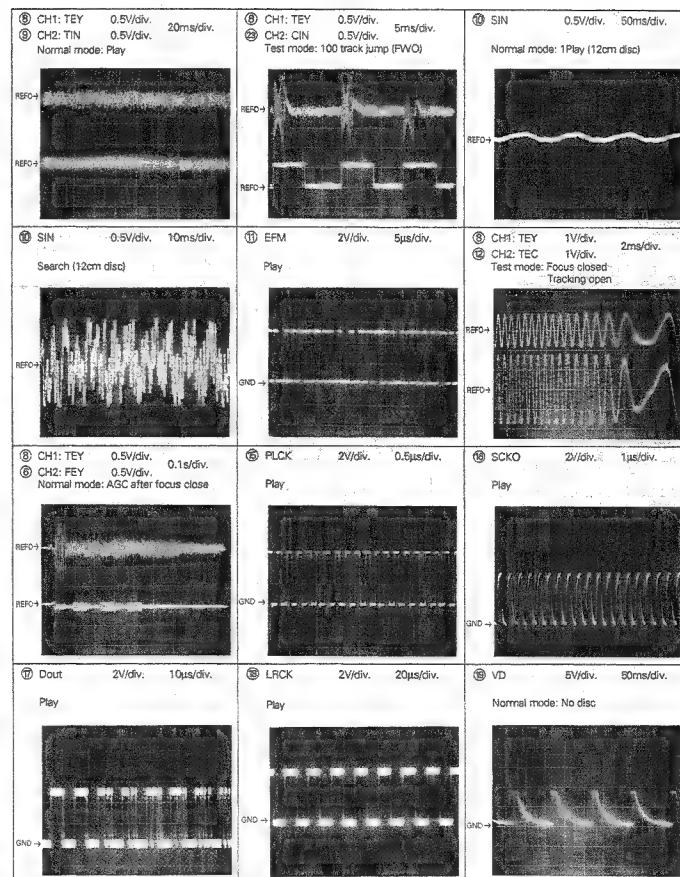
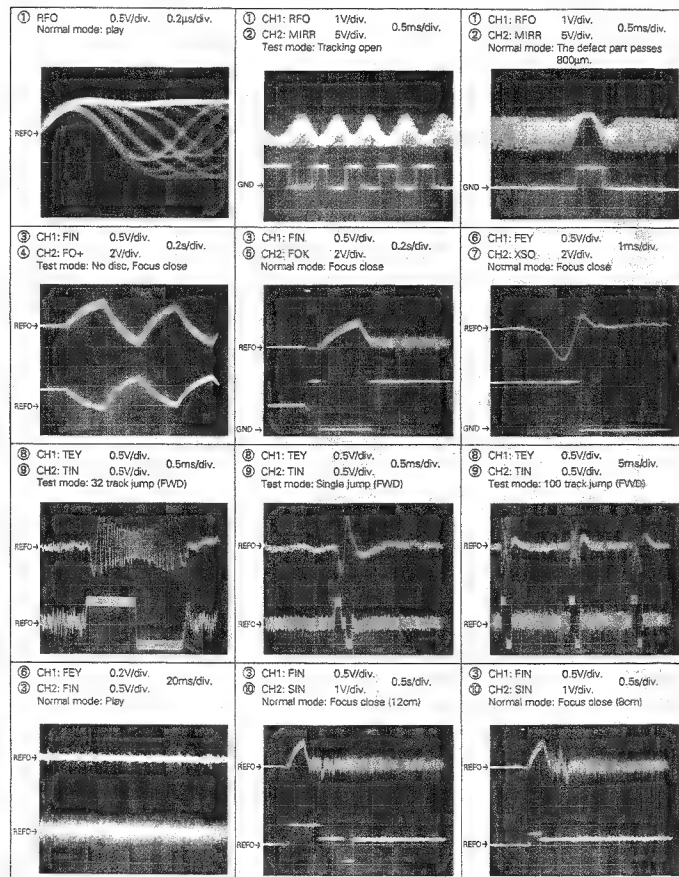
Fig.8

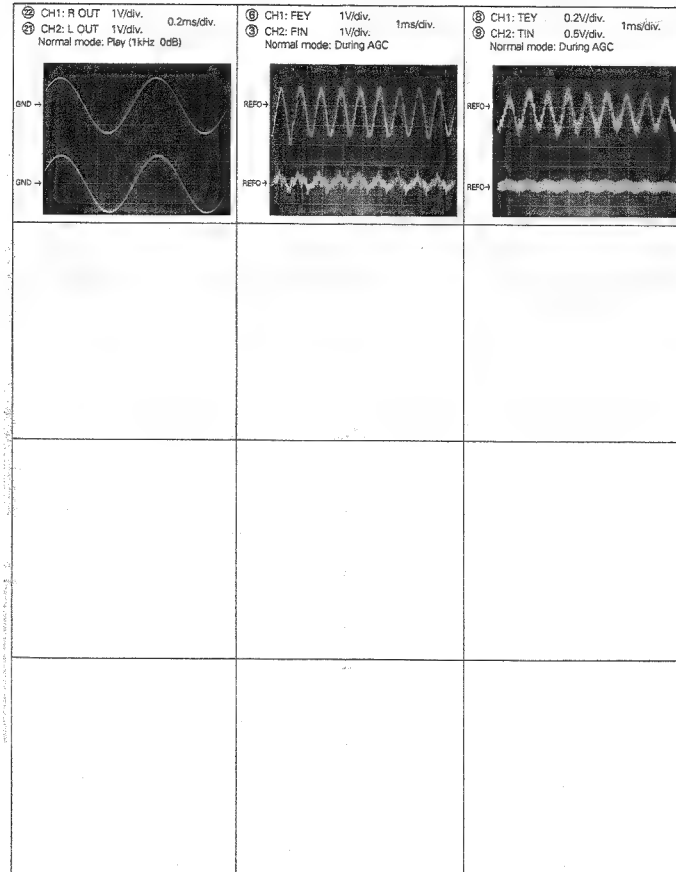




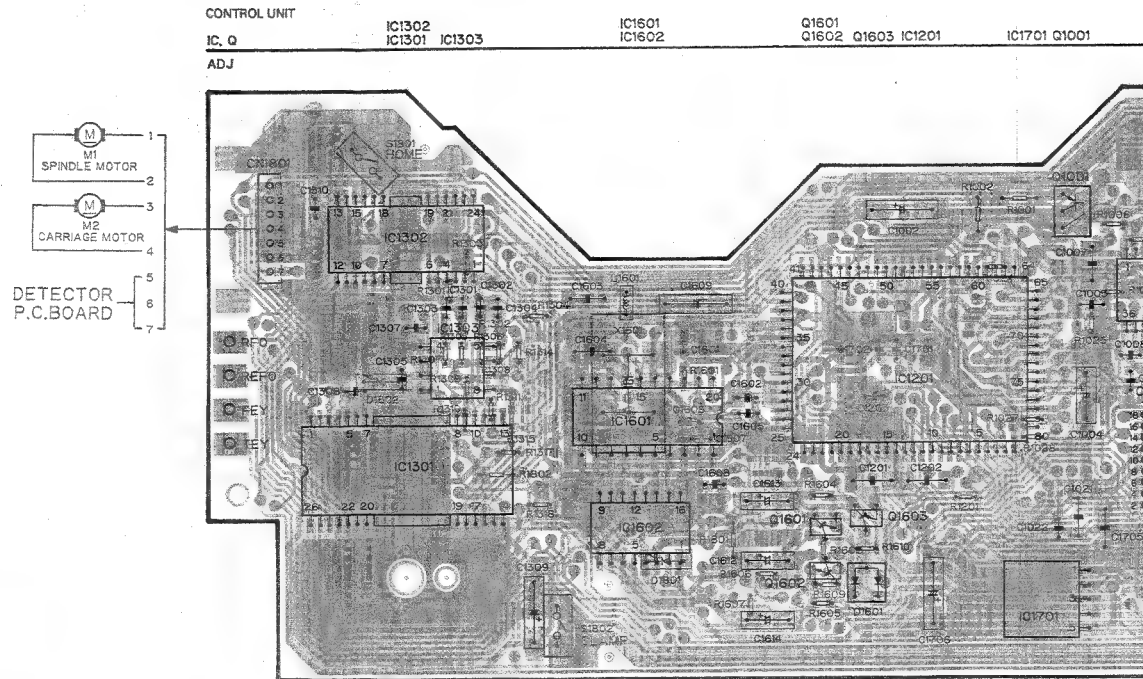
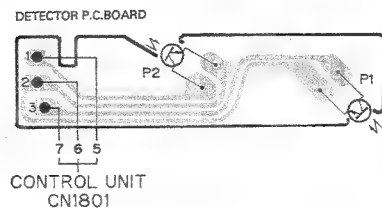
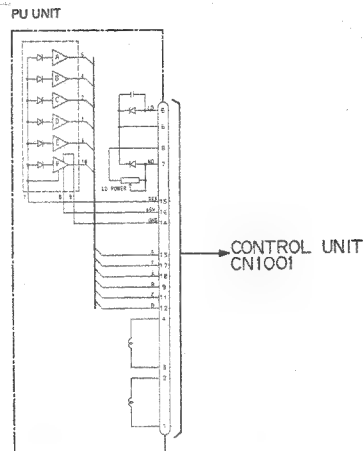
# ● Waveforms

Note: 1. The encircled numbers denote measuring points in the circuit diagram.  
2. Reference voltage  
REFO: 2.5V





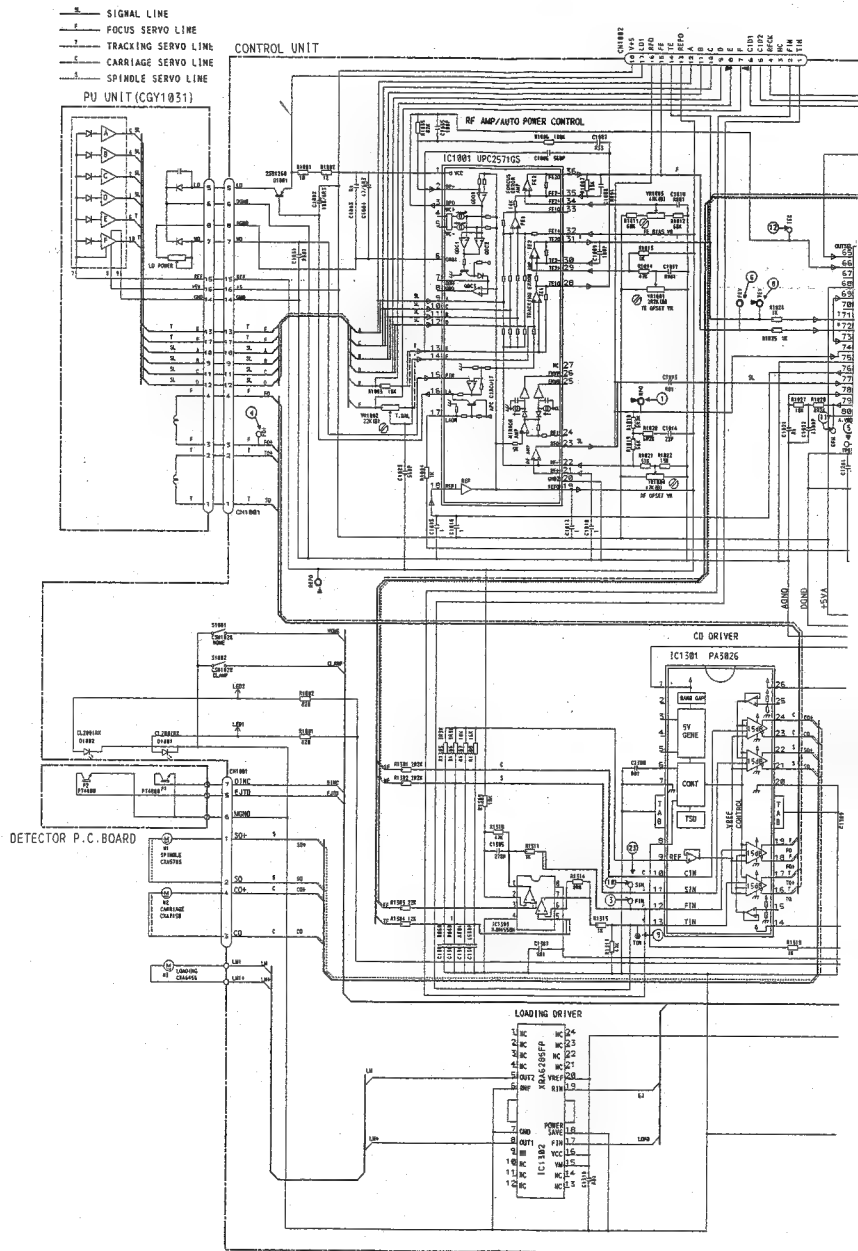
### ● Connection Diagram



VR1003	VR1002
VR1001	VR1004



● Circuit Diagram



discrete resistors.

Symbol indicates a capacitor.  
No differentiation is made between chip capacitors and discrete capacitors.

are expressed as:  
2.5-202  
0.022-022

IC201  
UP06370802F1  
FOCUS/TRACKING  
CARRIAGE/SPINDLE  
DIGITAL SERVO  
DIGITAL SIGNAL  
PROCESSOR

IC101  
TC9256F  
D/A CONVERTER

IC102  
TA2863F  
LOW-PASS FILTER

REGULATOR  
LM7805

Power supply connections: +5V, +15V, GND.

Pinout for IC201 (UP06370802F1):

Pin	Signal	Pin	Signal
1	NC	25	NC
2	NC	26	NC
3	NC	27	NC
4	NC	28	NC
5	NC	29	NC
6	NC	30	NC
7	NC	31	NC
8	NC	32	NC
9	NC	33	NC
10	NC	34	NC
11	NC	35	NC
12	NC	36	NC
13	NC	37	NC
14	NC	38	NC
15	NC	39	NC
16	NC	40	NC
17	NC	41	NC
18	NC	42	NC
19	NC	43	NC
20	NC	44	NC
21	NC	45	NC
22	NC	46	NC
23	NC	47	NC
24	NC	48	NC

43



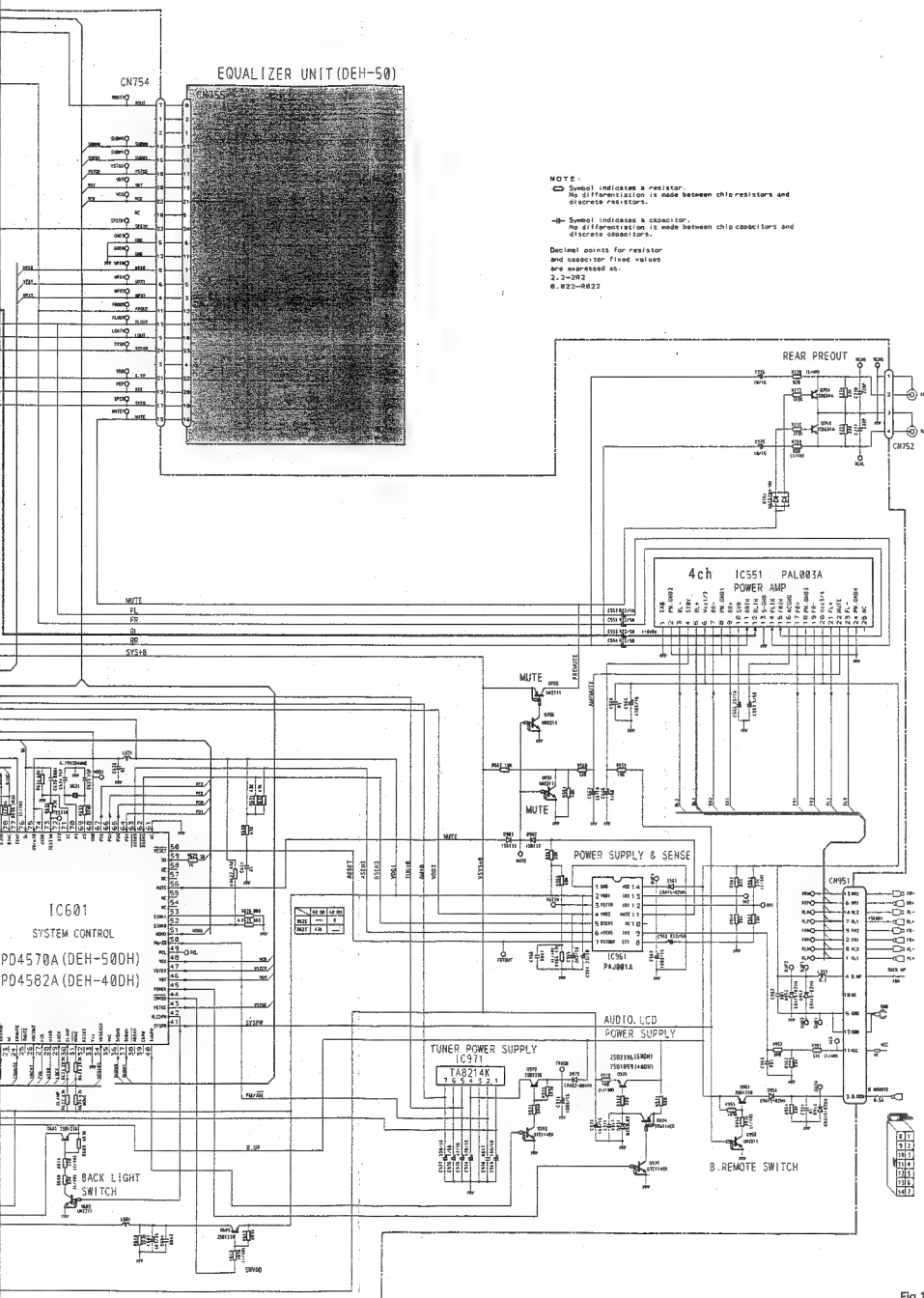


Fig.12



## ● Connection Diagram

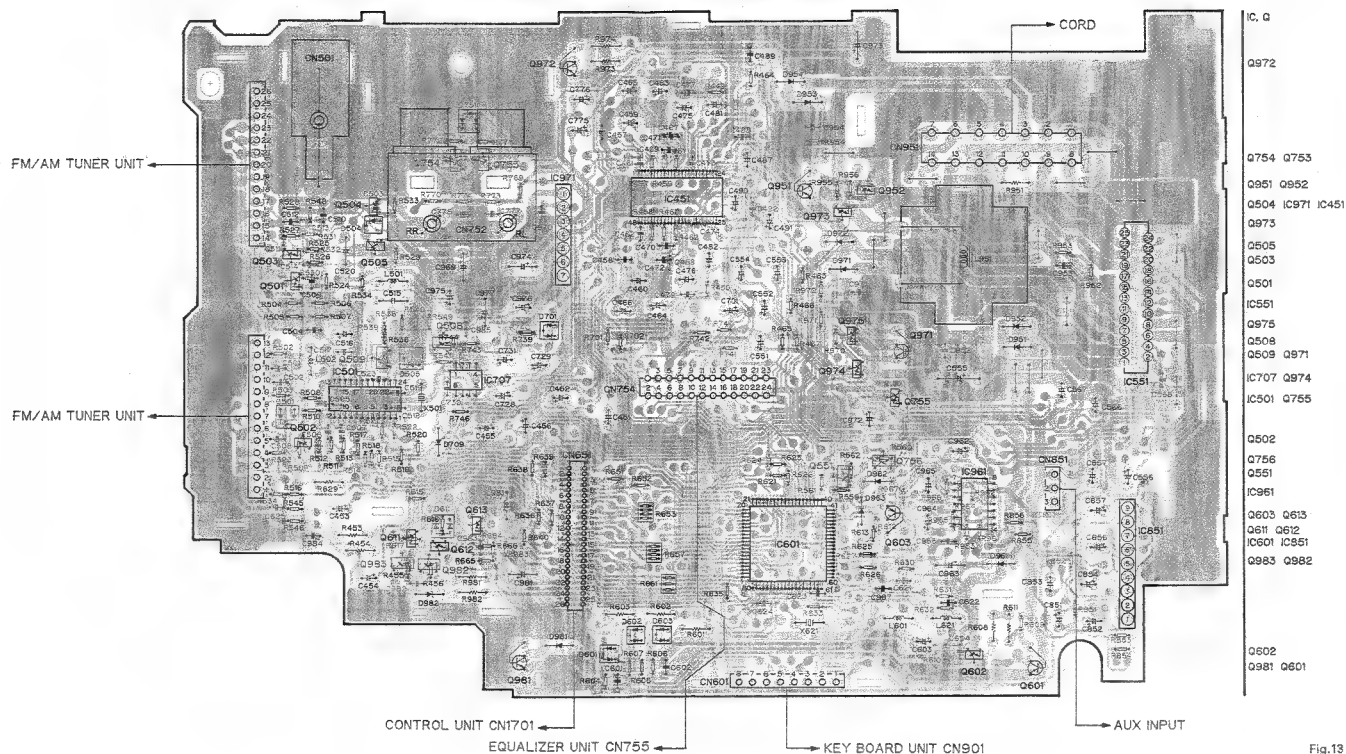


Fig.13

### ● Circuit Diagram

A

8

C

D

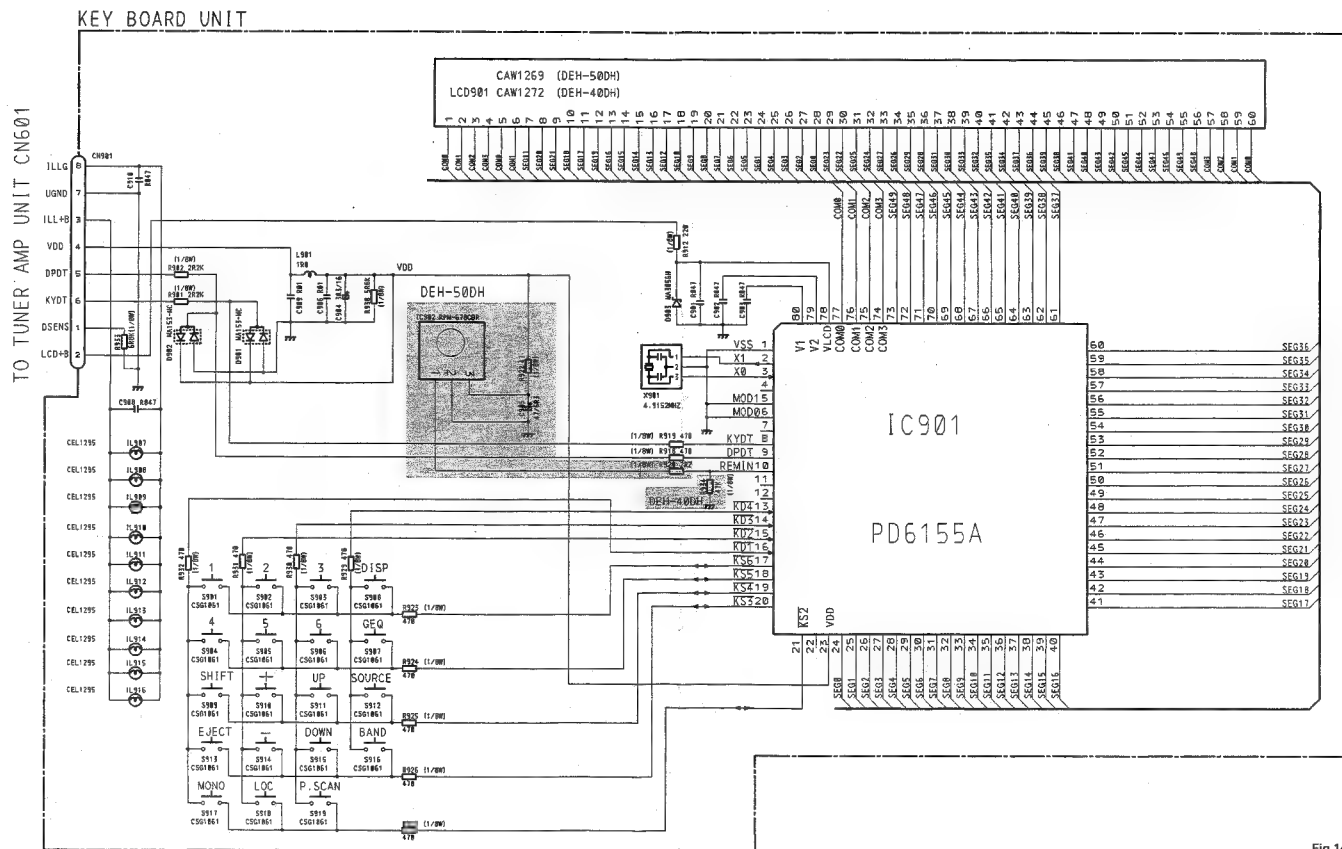


Fig.14

IC901



## 8.4 FM/AM TUNER UNIT

## ● Circuit Diagram

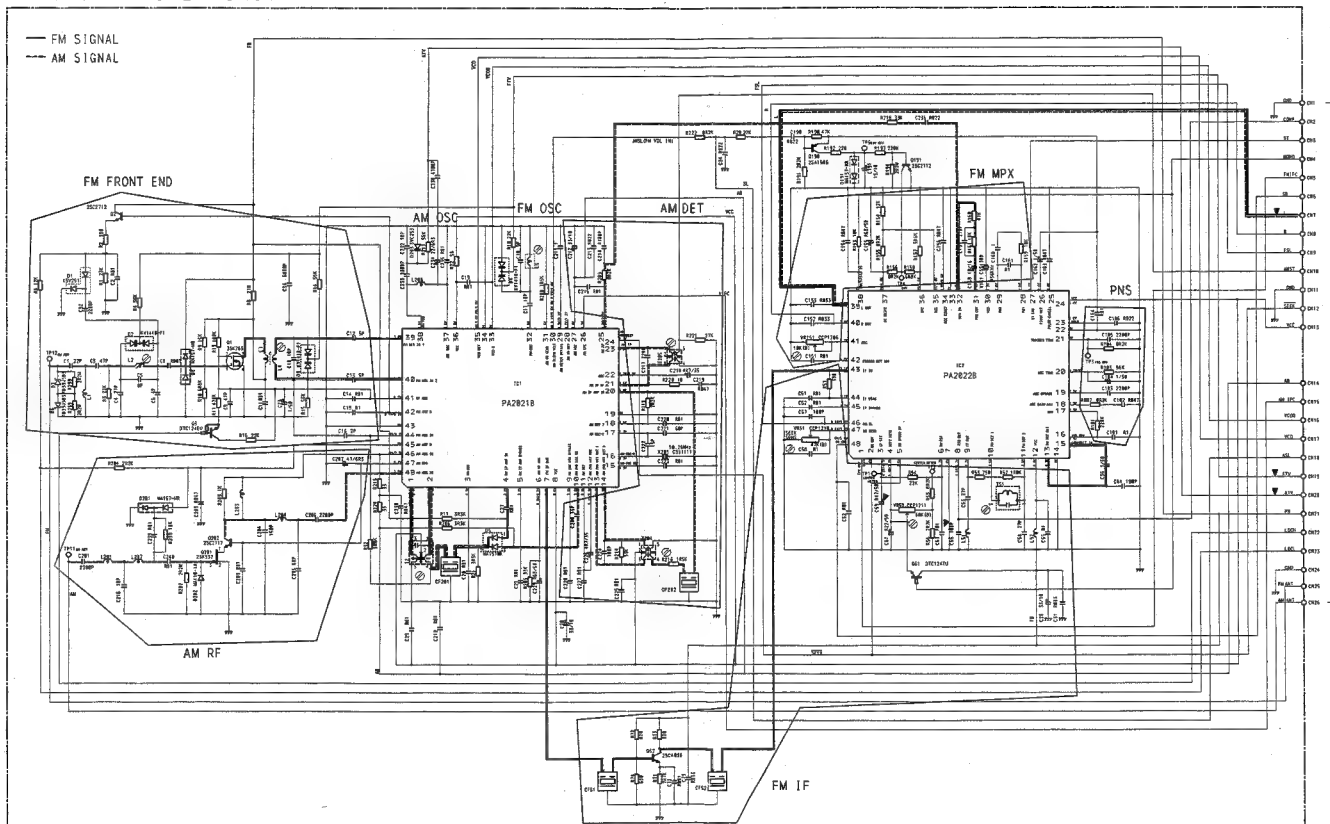
## FM/AM TUNER UNIT

A

B

C

D



A

B

C

D

Fig.16

## ● Connection Diagram

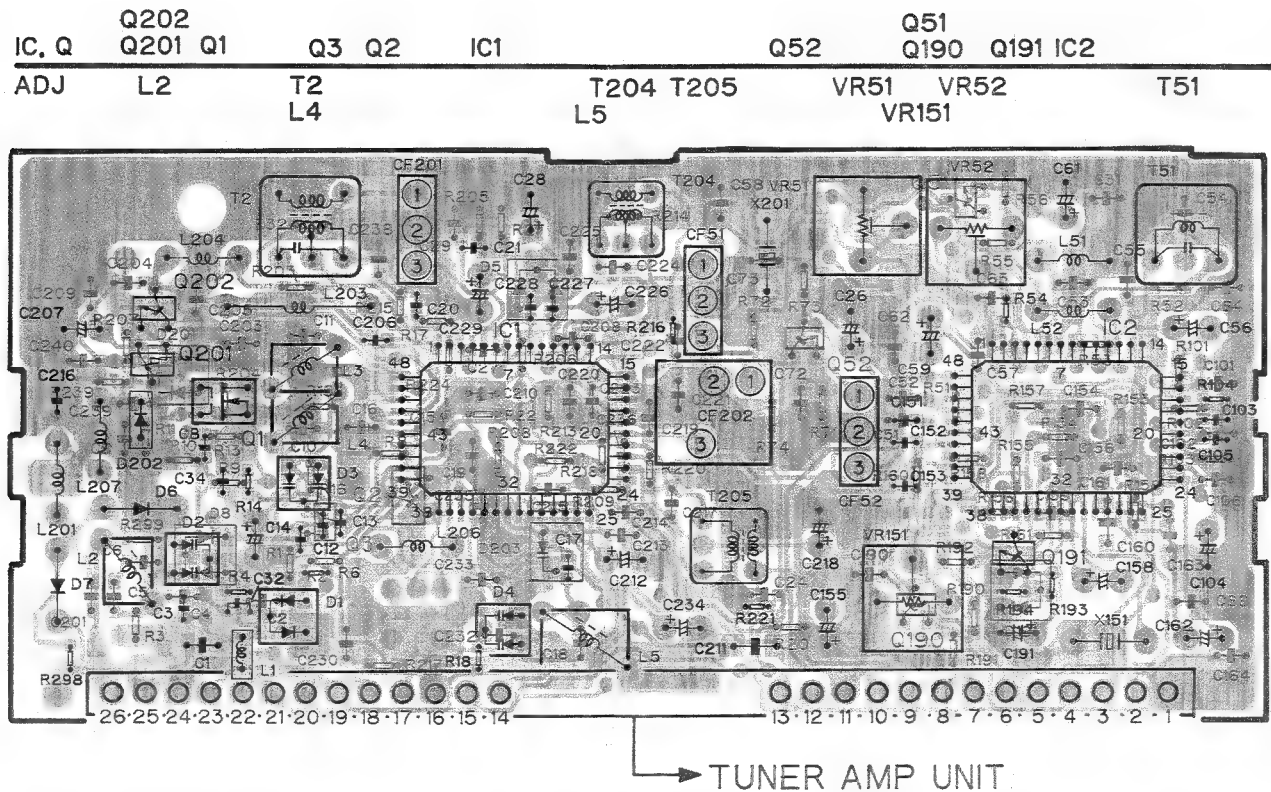


Fig.17

# 8.5 EQUALIZER UNIT(DEH-50DH)

## ● Circuit Diagram

## ● Connection Diagram

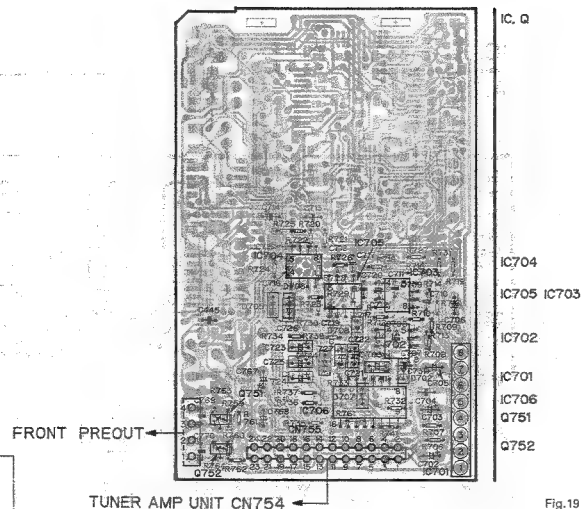
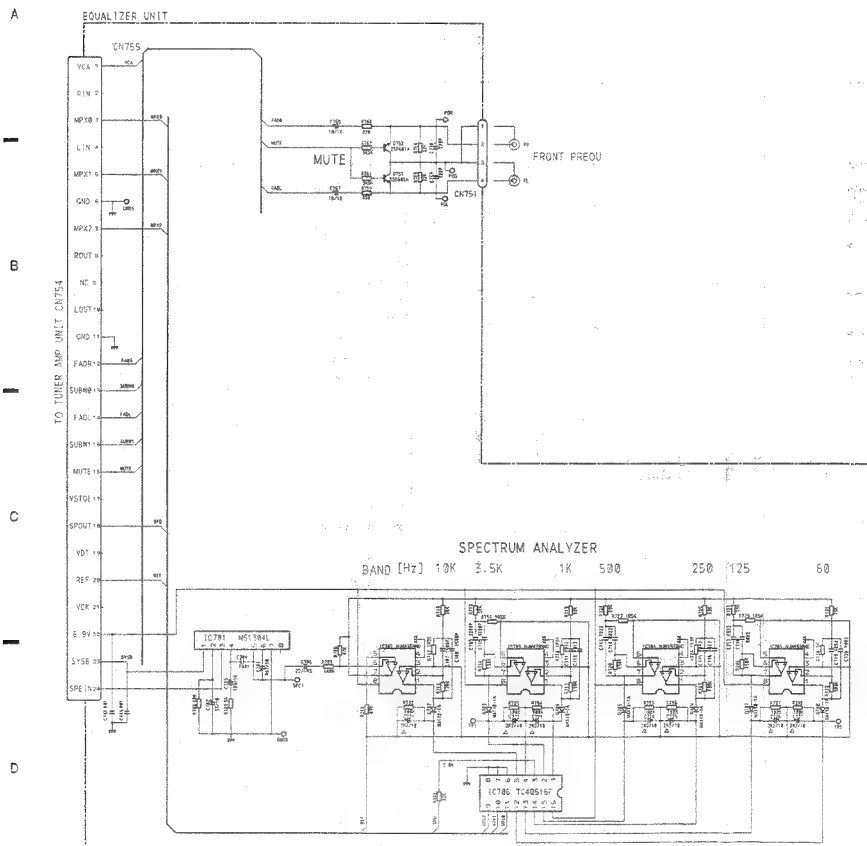


Fig.18

Fig.19

## 9. CHASSIS EXPLODED VIEW

## NOTE:

● Parts marked by "\*" are generally unavailable because they are not in our Master Spare Parts List.

## ● Parts List(DEH-50DH)

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Screw	BSZ26P060FMC	54	Screw	BSZ26P060FMC
2	Screw	BSZ26P080FMC	55	Connector(CN752)	CKS3199
3	Screw	BSZ30P050FMC	56	Bracket	CNC5504
4	Screw	BSZ30P140FMC	57	Button	CAC3776
5	Cord	CDE4392	58	Spring	CBH1440
6	Fuse	CEK1136	59	Spring	CBH1484
7	Cap	CNS1472	60	Spring	CBH1659
8	Resistor	RS1/2P102JL	61	Holder	CNC5500
9	Connector	CDE4527	62	Holder	CNC5501
10	Case	CNB1832	63	Arm	CNV3971
11	Heat Sink	CNC5753	64	Arm	CNV3972
12	Insulator	CNM4226	65	Arm	CNV4069
13	Insulator	CNM4388	66	Arm	CNV4070
14	Cover	CNS3414	67	Panel Unit	CXA6883
15	Cap	CNV2680	68,69	-----	
16	Tuner Amp Unit	CWX1751	70	Screw	PSS26P060FZK
17	Chassis Unit	CXA6804	71	Screw	BPZ20P100FZK
18	Chassis Unit	CXA6805	72	Button(1-6)	CAC4058
19	Remote Control Assy	CXA7276	73	Button(SOURCE)	CAC4058
20	Battery Cover	CNS3365	74	Button(DETACH)	CAC4059
21	CD Mechanism Module	CKX2814	75	Button(EJECT)	CAC4060
22	IC(IC902)	RPM-678CBR-L	76	Button(S)	CAC4071
23	IC(IC971)	TA8214K	77	Button(+)	CAC4116
24	IC(IC551)	PAL003A	78	Button	CAC4117
25	Screw	PSS26P060FZK	79	Button(BA,MA)	CAC4118
26	Transistor(Q981)	2SD2396	80	Sheet	CNM4326
27-35	-----		81	Cushion	CNM4415
36	Cord	CDE4464	82	Cushion	CNM4416
37	Cord	CDE4505	83	Cushion	CNM4419
38	Plug(CN951)	CKM1204	84	Cover	CNS3085
39	Plug(CN851)	CKS1223	85	Key Board Unit	CWX1759
40	Connector(CN601)	CKS2884	86	Grille Unit	CXA7025
41	Connector(CN754)	CKS3191	87	Holder	CNC5803
42	Antenna Jack(CN501)	CKX1006	88	LCD	CAW1269
43	Holder	CNC5013	89	Connector(CN901)	CKS2883
44	Bracket	CNC5571	90	Holder	CNC5499
45	Holder	CNC5731	91	Lens	CNV3969
46	FM/AM Tuner Unit	CWE1362	92	Connector	CNV3970
47	Equalizer Unit	CWX1771	93-96	-----	
48	Detach Grille Assy	CXA6970	97	Spacer	CNM4417
49	-----				
50	Plug(CN751)	CKS1224			
51	Connector(CN755)	CKS3190			
52	Connector(CN651)	CKS2775			
53	Screw	BPZ26P080FMC			

**DEH-50DH,40DH**

- The DEH-40DH Parts List enumerates the parts which differ from those enumerated in the DEH-50DH Parts List only. The parts other than those enumerated in the former are identical with those in the latter, to which you are requested to refer, accordingly. The DEH-50DH Parts List is given on page 59.

Mark No.	Description	DEH-50DH	DEH-40DH
		Part No.	Part No.
13	Insulator	CNM4388	*****
15	Cap	CNV2680	*****
16	Tuner Amp Unit	CWX1751	CWX1752
19	Remote Control Assy	CXA7276	*****
20	Battery Cover	CNS3365	*****
22	IC(IC902)	RPM-678CBR	*****
36	Cord	CDE4464	*****
37	Cord	CDE4505	*****
39	Plug(CN851)	CKS1223	*****
41	Connector(CN754)	CKS3191	*****
44	Bracket	CNC5571	CNC5572
47	Equalizer Unit	CWX1771	*****
50	Plug(CN751)	CKS1224	*****
51	Connector(CN755)	CKS3190	*****
85	Key Board Unit	CWX1759	CWX1760
86	Grille Unit	CXA7025	CXA7026
88	LCD	CAW1269	CAW1272
97	Spacer	CNM4417	*****



● Chassis

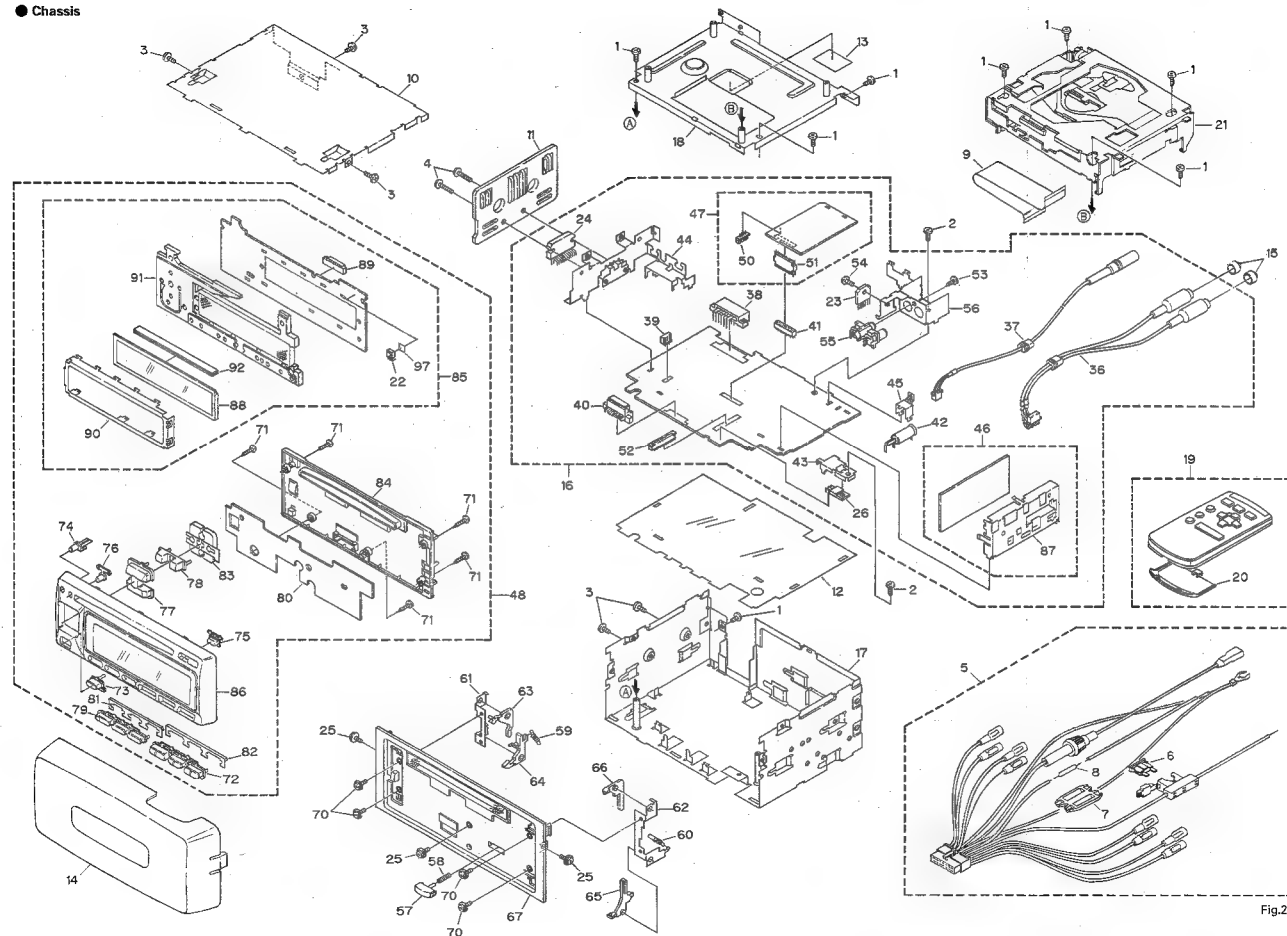


Fig.20

## 10. CD MECHANISM MODULE EXPLODED VIEW

## ● Parts List

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Screw	PMS26P040FMC	46	Lever	CNC4891
2	Control Unit	CWX1796	47	Lever	CNC4892
3	Connector(CN1001)	CKS1955	48	Bracket	CNC4893
4	Connector(CN1701)	CKS2775	49	Arm	CNC4896
5	Connector(CN1002)	CKS2811	50	Arm	CNC5566
6	Connector(CN1801)	CKS2196	51	Bracket	CNC5424
7	CD Mechanism Unit	CXA7048	52	Spacer	CNM3315
8	Screw	BMZ20P030FMC	53	Holder	CNV4018
9	Screw	BSZ20P040FMC	54	Sheet	CNM3693
10	Screw	CBA1250	55	Bracket	CNM3917
11	Screw	CBA1077	56	Belt	CNT1053
12	Screw	CBA1230	57	Clamper Unit	CXA6999
13	Screw	CBA1296	58	Guide	CNV2891
14	Washer	CBF1038	59	Holder	CNV3276
15	Washer	CBF1060	* 60	Roller	CNV3412
16	Spring	CBH1415	61	Damper	CNV3974
17	Spring	CBH1417	62	Arm	CNV3565
18	Spring	CBH1418	63	Arm	CNV3992
19	Spring	CBH1421	64	Gear	CNV3567
20	Spring	CBH1423	65	Gear	CNV3568
21	Spring	CBH1457	66	Gear	CNV3569
22	Spring	CBH1552	67	Gear	CNV3570
23	Spring	CBH1553	68	Arm	CNV3571
24	Spring	CBH1554	69	Holder	CNV3572
25	Spring	CBH1685	70	Gear	CNV3573
26	Spring	CBH1556	71	Holder	CNV3574
27	Spring	CBH1557	72	Holder	CNV4067
28	Spring	CBH1558	73	Holder	CNV3576
29	Spring	CBH1664	74	Rack	CNV3577
30	Spring	CBH1560	75	Arm	CNV3578
31	Spring	CBH1576	76	Plate	CNV3629
32	Spring	CBH1577	77	Guide	CNV3694
33	Spring	CBH1666	* 78	Gathering P.C.Board	CNX2103
34	Spring	CBH1583	79	Gathering P.C.Board	CNX2128
35	Spring	CBH1628	80	Screw Unit	CXA2375
36	Spring	CBL1170	81	Motor Unit(M2)	CXA7150
37	Spring	CBL1171	82	Chassis Unit	CXA6979
38	Spring	CBL1200	83	Arm Unit	CXA5603
39	Connector	CDE4147	84	Arm Unit	CXA5604
40	PU Unit	CGY1031	85	Bracket Unit	CXA5605
41	Shaft	CLA2220	86	Lever Unit	CXA6975
42	Roller	CLA2255	87	Arm Unit	CXA5607
43	Shaft	CLA2256	88	Arm Unit	CXA5608
44	Frame	CNC5661	89	Gear Unit	CXA6976
45	Arm	CNC5565	90	Motor Unit(M1)	CXA5703

Mark No.	Description	Part No.
91	Bracket Unit	CXA5938
92	Frame Unit	CXA6192
93	Motor Unit(M3)	CXA6456
94	Screw	JFZ17P035FNI
95	Screw	JFZ20P014FMC
96	Screw	JFZ20P020FZK
97	Screw	JFZ20P025FMC
98	Photo-transistor(P1,2)	PT4800
99	Washer	YE15FUC
100	Washer	YE20FUC
101	****	
102	Sheet	CNM4028
103	Spring	CBH1710
104	Spacer	CNC5436
105	Screw	JFZ20P045FMC
106	Washer	CBF1061
107	Cushion	CNM4089
108	****	
109	Cushion	CXX1136

## ● CD Mechanism Module

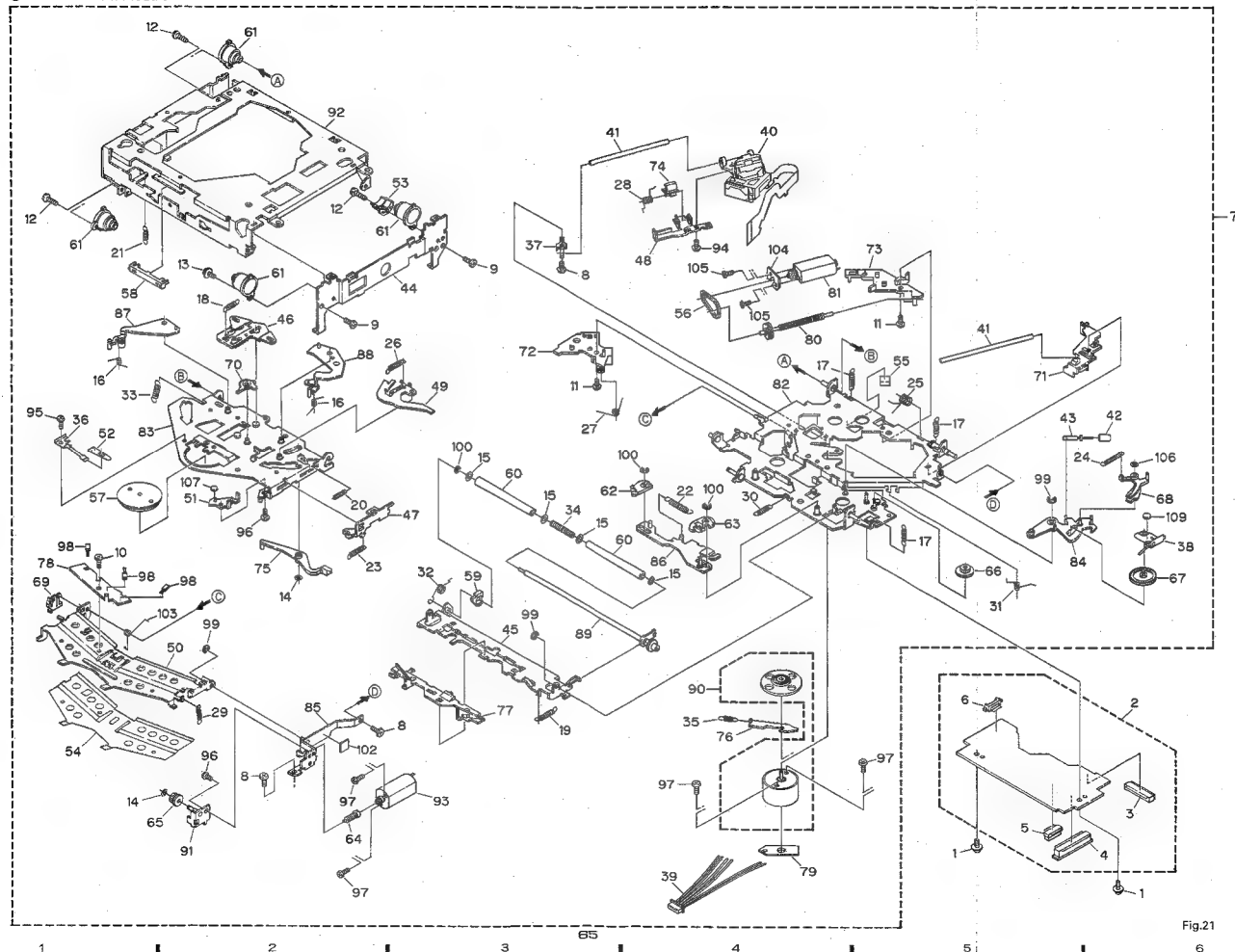


Fig.21

## 11. PACKING METHOD

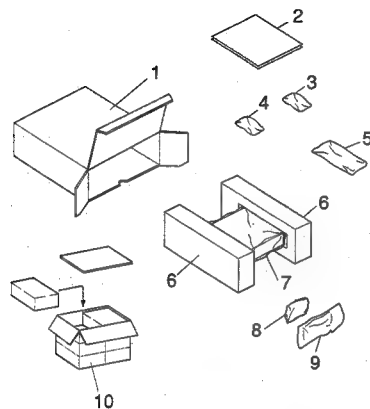


Fig.22

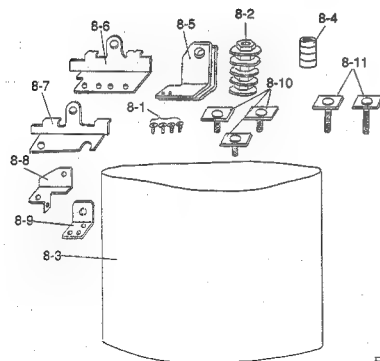


Fig.23

## ● Parts List

Mark No.	Description	DEH-50DH Part No.	DEH-40DH Part No.
1	Carton	CHG2583	CHG2582
* 2-1	Card	ARY1048	ARY1048
2-2	Owner's Manual (English, French, Spanish)	CRD1818	CRD1848
3	Remote Control Assy	CXA7276	*****
4	Accessory Assy	CEA1479	*****
* 4-1	Polyethylene Bag	CEG-127	*****
4-2	Battery	CEX1006	*****
4-3	Fastener(Rough)	CNM3629	*****
4-4	Fastener(Soft)	CNM3630	*****
5	Cord	CDE4392	CDE4392
6	Protector	CHP1692	CHP1692
7	Cover	CEG1177	CEG1177
8	Accessory Assy	CEA2006	CEA2006
8-1	Screw(×4)	BSZ30P060FMC	BSZ30P060FMC
8-2	Nut(×5)	CBN1012	CBN1012
* 8-3	Polyethylene Bag	CEG1101	CEG1101
8-4	Spacer(×4)	CLA2598	CLA2598
8-5	Bracket(×2)	CNC5505	CNC5505
8-6	Bracket	CNC5506	CNC5506
8-7	Bracket	CNC5507	CNC5507
8-8	Bracket	CNC5586	CNC5586
8-9	Bracket	CNC5587	CNC5587
8-10	Bolt Unit(×3)	CXA7980	CXA7980
8-11	Bolt Unit(×2)	CXA7961	CXA7961
9	Cover	CNS3414	CNS3414
10	Contain Box	CHL2583	CHL2582

# 12. OPERATION AND CONNECTION

## ● DEH-50DH

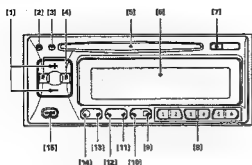


Fig. 24

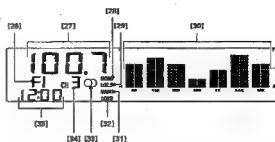


Fig. 26

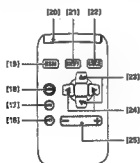


Fig. 25

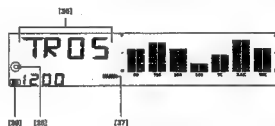


Fig. 27

## Connection Diagram (Fig. 28)

1. This unit
2. Antenna Jack
3. Rear output
4. Front output
5. White
6. Red
7. External input (2.5 stereo)
8. Connecting cord with RCA pin plugs (sold separately)
9. Power amp (sold separately)
10. Fuse holder
11. Blue
  - To system control terminal of the power amp or Auto-antenna relay control terminal (max. 300 mA 12 V DC.)
12. Blue
13. Black (ground)
  - To vehicle (metal) body.
14. Orange
  - To terminal always supplied with power regardless of ignition switch position.
15. Red
  - To electric terminal controlled by ignition switch (12 V DC) ON/OFF.
16. Fuse resistor
17. Use this for connections when you have the separately available amplifier.
18. With a 2 speaker system, connect to the 2 speakers in the front or the rear.
  - 19. Left speaker
  - 20. Right speaker
  - 21. Front
  - 22. Rear
  - 23. Green
  - 24. Gray
  - 25. Green/black
  - 26. Gray/black
  - 27. Green/red
  - 28. Gray/red
  - 29. Black/green
  - 30. Black/gray

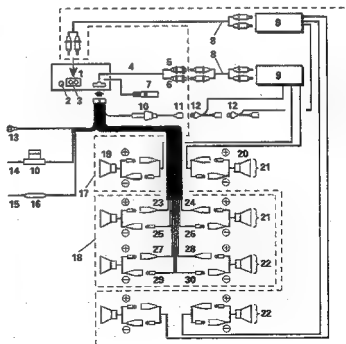


Fig. 28

## Adjusting Volume and Tone

### Parts Identification

#### Fig. 24

- [1] Volume/Audio adjustment
- [3] Shift
- [4] Adjustment
- [5] Disc insertion slot
- [6] Display
- [7] Eject
- [9] Attenuator
- [15] Source selector/AUX ON/OFF

### Switching Power On

#### Radio

Press button [15] to switch the tuner power on. Press button [15] again to switch the power off.

#### CD

When a disc is inserted in the Disc insertion slot [5], it is loaded and starts playing automatically. The disc is ejected by pressing button [7].

### Changing the source

When button [15] is pressed while a disc is inserted, the source is changed in the following order:

CD — Radio — OFF

If other audio equipment is connected to the external input terminal using a commercially available 3.5 mm mini-plug, perform the following operation to turn AUX ON. Pressing button [15] for 2 seconds or more when the unit is ON ("AUX" is displayed in [27] on the display.)

- If the volume of this unit and the volume (output) of the external equipment are high when you change to the AUX mode,

sound will be emitted at an extremely high volume, with potentially dangerous consequences. Be sure to adjust the volume of both units to a low level before changing to the AUX mode.

- Pressing button [15] to change the source will cancel the AUX mode.

### Adjusting Audio

Press button [1] to adjust the volume. Each press of button [3] changes the display and the function of button [1] as follows:

Volume — Fader (Balance) — Bass (Treble)

— Loudness (ON/OFF)

- If no operations are performed within 8 seconds, adjustment modes are canceled. Make adjustments within 8 seconds.

- If the (◀) or (▶) side of button [4] is pressed when "F-" is shown on the display, it changes to "B-", and the balance can be adjusted. To switch from Balance to Fader, press the (+) or (-) side of button [1], and the display and button [1] function becomes Fader.

- When "BS" is indicated on the display, press the (▶) side of button [4] to switch to "TR". When "TR" is displayed, press the (◀) side of button [4] to switch to "BS".

- When you're adjusting fader, balance, bass or treble settings, the indicator will stop at the center setting.

### Adjusting Volume

Pressing the (+) side of button [1] increases the volume, while the (-) side decreases it. (Display shows "V-00" ~ "V-30".)

- When driving your vehicle, be sure to keep the volume of the unit set low enough to allow you to hear sounds coming from outside.

Press button [9] to reduce the volume to 1/10 of its current setting (The "V-" display blinks). Press button [9] again returns the volume to its original level.

### Adjusting the Fader

When you press the (+) side of button [1], the front speaker volume increases gradually while the rear speaker volume decreases.

When you press the (-) side of button, the rear speaker volume increases gradually while the front speaker volume decreases. (Display shows "F-F9" ~ "F-R9".)

- Please set "F-0" when using 2 speaker system.

### Adjusting Balance

Pressing the (◀) side of button [4] shifts the balance to the left speaker, while the (▶) side shifts it to the right speaker. (Display shows "B-L9" ~ "B-R9".)

### Adjusting Bass

Pressing the (+) side of button [1] increases bass, while the (-) side decreases bass. (Display shows "BS-6" ~ "BS 6".)

### Adjusting Treble

Pressing the (+) side of button [1] increases treble, while the (-) side decreases treble. (Display shows "TR-6" ~ "TR 6".)

### Using the Loudness Control

Pressing the (▶) side of button [4] turns the loudness function on, and "LOUD" [32] appears on the display. Pressing the (◀) side of button [4] turns it off. This loudness function supplements the insufficiency of low- and high-frequency ranges when the volume is low.

## Changing the Spectrum Analyzer Display

### Parts Identification

#### Fig. 24

- [6] Display
- [10] Spectrum Analyzer Display Selector

#### Fig. 26

- [30] Spectrum Analyzer Display

Each time you press button [10], it changes to A, B, C, D and E in order.

#### A: Level Display

This indicates the music energy level of each frequency by the height of the bar for each band (Fig. 29).



Fig. 29

#### B: Peak Bound Display

This indicates the music energy level of each frequency by the height of the bar for each band, while also showing a temporary indication of level peaks (Fig. 30).



Fig. 30

#### C: Symmetric Display

This indicates the music energy level of each frequency by width (Fig. 31).



Fig. 31

#### D: Peak Display

The sound intensity at each frequency is shown by height, indicating the variation in the maximum value (Fig. 32).



Fig. 32

#### E: Wave Display

The display represents an undulating wave. A vertically symmetrical peak display is shown, with the center as the maximum point (Fig. 33).

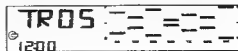


Fig. 33

## Using the Radio

### Parts Identification

#### Fig. 24

- [4] Tuning
- [6] Display
- [8] Preset
- [11] Best Stations Memory (BSM)/Preset scan
- [12] Local station
- [13] FM stereo, mono/Seek, Manual
- [14] Band
- [15] Source Selector

#### Fig. 26

- [26] Band
- [27] Frequency
- [28] FM mono
- [29] Local station
- [31] Manual
- [33] FM stereo
- [34] Preset number

### Listening to the Radio

#### Electronic Tuner

Frequency allocation differs depending upon the area. This unit has been designed in accordance with the frequency allocation for North America. Use in other areas will result in improper reception.

1. Press button [15] to switch the radio power on.
2. Press button [14] to select a band.

F — F1 — F2 — A  
(FM1) (FM2) (AM)

3. Use seek tuning to tune in a frequency. Ensure that "MANU" [31] is not indicated on the display. If so, turn it off by pressing button [13]. Press either the (◀) side or the (▶) side of button [4].

When the (▶) side is pressed, the tuner will automatically receive high frequencies. When the (◀) side is pressed, it will automatically receive low frequencies.

#### 4. Adjust volume and tone.

#### 5. Assign the tuned frequency to one of the buttons in Bank [8] (Preset memory).

Press and hold down one of the buttons in Bank [8] for at least 2 seconds. The frequency is assigned to the selected button when the preset number [34] stops flashing on the display. Up to 18 FM stations (6 each for FM1, FM2 and FM3), and 6 AM stations can be assigned to the preset memory buttons in Bank [8].

6. Once a frequency is assigned to a button in Bank [8], you just need to press that button to tune it in.

This also causes the number of the button pressed to appear at position [34] on the display.

### Manual Tuning

Use manual tuning when stations are too weak to be picked up by seek tuning.

1. Turn on "MANU" [31] by pressing button [13].
2. Each press of the (▶) side of button [4] increases the frequency in 0.2 MHz steps in the FM band, 10 kHz in the AM band. Pressing the (◀) side of button [4] decreases the frequency.

decreases the frequency. Holding down either side of button [4] changes the frequency at high speed.

### Adjusting Seek Sensitivity

The seek tuning function of this tuner lets you select between a local setting for reception of strong stations only, and a DX (distant) setting for reception of weaker stations. The local setting also has 4 seek tuning sensitivity levels for FM and 2 levels for AM to match local conditions.

#### Changing the Local Seek Sensitivity

1. Use button [14] to select a band.
2. Hold down button [12] for more than 2 seconds, and the display will show you the current local seek sensitivity for about 5 seconds.
3. While the local seek sensitivity remains on the display, press the (▶) side of button [4] to increase the sensitivity level, and the (◀) side to decrease the level as shown below.  
FM: LOC1 = LOC2 = LOC3 = LOC4  
AM: LOC1 = LOC2  
The LOC4 setting allows reception of only the strongest stations, while lower settings let you receive progressively weaker stations.
- The display of local seek sensitivity returns to the frequency when about 5 seconds have elapsed after the change of sensitivity.

### Switching between Local and DX

Press button [12] to switch between Local and DX (distant) seek tuning. When "LOC5" [29] is shown on the display, seek tuning is performed with the local seek sensitivity. Otherwise, seek tuning is performed with the DX seek sensitivity.

### Switching between FM Stereo and Mono

Generally, it is best to allow the "Super Tuner" function to automatically set the optimum listening conditions. When stereo broadcasting is received, "CD" [33] will appear on the display. When there is a large amount of noise, you can hold down button [13] for 2 seconds or more for clearer mono reception ("MONO" [28] will appear on the display).

### BSM (Best Stations Memory)

This function automatically locates stronger stations and automatically assigns their frequencies to the buttons in Bank [8], from strongest to weakest. It comes in handy when trying to find local stations while driving.

1. Press button [14] and select a band.
2. Holding down button [11] for about 2 seconds will start BSM search. At this time, "—" will flash on the display.
3. The frequency display will return once BSM search is complete, and frequencies are assigned to buttons ① through ⑥ in Bank [8].
- At the end of the BSM search, the displayed frequency is that assigned to button ① in Bank [8].

- You can cancel BSM search by pressing button [11] again.
- If there are fewer than 6 strong stations in the area, some of the buttons in Bank [8] will not be assigned frequencies, so they will retain any frequencies assigned to them previously.
- BSM search may take as long as 30 seconds in areas where there are few strong stations.

### Preset Scan Tuning

This function lets you automatically monitor the stations assigned to the preset buttons.

1. Press button [11]. The frequency will appear on the display [27] and the preset number [34] will blink. Each station assigned to the buttons in Bank [8] will be automatically tuned in for about 8 seconds.
2. When you hear a station that you like, press button [11] again to cancel preset scan tuning and remain at that station.
- Stations stored in memory under the buttons [8] but whose signal is weak will not be recalled.

### Playing Compact Discs

#### Discs

- Only use compact discs (optical digital audio discs) bearing the mark shown below (Fig. 34).



Fig. 34

- Do not use cracked, scratched, or warped discs.
- Do not touch the disc's playing side. Handle the disc as shown below (Fig. 35).



Fig. 35

- Do not affix any label on the disc.
- Do not apply any vinyl record spray, antistatic agent, benzene, paint thinner, or any other volatile chemicals.

- Do not play a dirty disc. Use a soft cloth to clean a dirty disc as shown below. Wipe the disc outward from the center (Fig. 36).



Fig. 36

- Do not place the disc in high temperatures and direct sunlight.
- Be sure to store the disc in its case.

#### CD Playing Environment

- Disc playback may be interrupted by sudden road shock.
- When the air temperature is low and the car heater is turned on, condensation on the disc and internal parts of the unit may prevent proper playback operation. If this happens, turn off the unit and wait one hour until the condensation is gone. Also, use a soft cloth to wipe off any condensation from the disc.

#### Parts Identification

##### Fig. 24

- [4] Track number search/Fast Forward, Reverse
- [6] Display
- [7] Eject
- [8] ① Pause
- [8] ② Repeat
- [8] ③ Random play
- [13] Manual
- [15] Source selector

##### Fig. 27

- [36] Play mode display
- [37] MANU
- [38] Disc indicator

#### Listening to the CD player

- With the label side up, insert a disc into [5]. Playback will start. (The track number [36] will be displayed.)
- Do not insert the disc with the label side down. Doing so may scratch the disc.
- If the disc stops midway while it is being inserted or if there is no playback after a disc is inserted, something may be wrong with the disc. Eject the disc and check it.
- Adjust volume and tone.
- Eject the disc by pressing button [7].
- Do not leave the disc halfway into the unit as shown below. Doing so may cause the disc to be bent or dropped (Fig. 37).

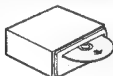


Fig. 37

#### Track Number Search

The track number search function lets you select a particular track on the disc you are listening to.

- Check that "MANU" [37] is not lit on the display. If it is lit, turn it off by pressing button [13]. The track number [36] is incremented by pressing the (F) side of button [4], and decremented by pressing the (R) side. Holding either side of button [4] down changes the track number at high speed.

#### Using Fast Forward and Reverse

- Press button [13] to turn on the "MANU" indication [37].
  - Press the (F) side of button [4] to fast-forward, or the (R) side to reverse.
- Sound can be heard while fast-forwarding or reversing.

#### Repeat

- To repeat the music you are listening to, press button ② in Bank [8] ("RP" will appear on the display [36]).
- To cancel music repeat, press button ② in Bank [8] to turn off "RP".

#### Random Play

- To play music randomly, press button ③ in Bank [8] ("Rd" will appear on the display [36]). Once the current track has been played, the microprocessor will randomly select the next and subsequent tracks.
  - To cancel random play, press button ③ in Bank [8] to turn off "Rd".
- Since selections are played in random order, the same selection may be played twice in succession.

#### Pausing

- Press button ① in Bank [8] to pause during disc playback ("—" appears on display [36]).
  - Press button ① in Bank [8] again to release pause.
- You can select a track using the track number search during pause. ("—" is off while a track is being searched.) When the track search ends, the found track is paused at its beginning.

#### Error Mode

If there is a problem with CD playback, an error code will be displayed. (Ex: "E-14") If an error is displayed, refer to the table below to identify the problem. If the error is displayed even after corrective action is taken, contact your dealer or the nearest authorized PIONEER Service Station.

#### D: Display

##### C: Cause

##### T: Treatment

- D: E-11, 12, 14, 17, 30
- C: The disc is dirty.
- T: Clean the disc.
- D: E-11, 12, 17, 30
- C: The disc is scratched.
- T: Replace the disc.
- D: E-11, 14, 17
- C: The disc is inserted with the label side down.
- T: Insert the disc with the label side up.
- D: E-14
- C: An unrecorded CD-R is being used.
- T: Check the disc.
- D: E-10, 11, 12, 14, 17, 30, A0
- C: Electrical or mechanical fault.
- T: Turn off the car's ignition and turn it back on again. Or change the source to another one and then change it back to CD.



## Using the Remote Control

### Loading Batteries (Fig. 38)

1. Remove the battery compartment cover from the remote controller unit.
2. Load 2 batteries, whose type is UM-4, AAA or IEC R03 1.5V, as applicable, that come with the unit into the remote controller unit, ensuring that their polarity (+/-) is correct.
3. Replace the battery compartment cover.



Fig. 38

### Precautions When Loading Batteries

Note the following precautions when loading batteries into the remote controller unit to avoid damage due to battery fluid leakage.

- Always check carefully that you are loading batteries with the (+) and (-) poles facing in the proper directions.
- Never mix old and new batteries. Always replace batteries with 2 new ones.

- Some batteries may appear to be identical but have different voltage ratings. Never mix battery types.
- Some batteries can be recharged and some cannot. Be sure to carefully read the label for the batteries you use.
- To avoid damage to the remote controller caused by battery leakage, remove the batteries from the remote controller if you do not plan to use it for more than one month. If you find that fluid has leaked, thoroughly wipe out the battery compartment and load a set of new batteries.

### Precautions

- Keep the remote controller unit in an area not exposed to long periods of direct sunlight.
- The remote controller unit may not operate properly if the transmitter of the remote controller unit is pointed towards the floor or the seat of the vehicle.
- Since the transmitter employs and infrared system, it may not operate properly while car stereo unit is exposed to direct sunlight. In such a case, block the sunlight from the sensor and then perform the desired operation.
- If the remote controller fails to operate unless it is brought close to the unit, it may indicate that battery power is low. Replace the batteries in the remote controller.

## Parts Identification

### Fig. 25

#### [16] Attenuator

Press to reduce the volume to 1/10 of its current setting (The "V-" display blinks.). Pressing again returns the volume to its original level.

#### [17] Learn

The following procedure enables the operation of a button on the unit to be memorized in this button.

1. Press button [14] for 2 seconds or more to change to the learn mode. ("LRN" is displayed.)
- The learn mode is canceled if no operation is performed for 11 seconds.
2. Press the button on the unit that you want to operate with the remote controller.
- Buttons [2] cannot be memorized in the Learn button.

#### [20] Transmitter

Each time this button is pressed, the display and the function of buttons [1] and [2] change as follows:

Volume — Fader (Balance) — Base (Treble)  
— Loudness (ON/OFF) —

#### [22] Source

Pressing this button when a disc is inserted changes the source in the following order:

CD — Radio — OFF

Pressing the button for 2 seconds or more when the unit is ON switches external input "AUX" ON or OFF alternately.

#### [25] Volume

Press the (+) side to increase volume and the (-) side to decrease volume.

## Operating Radio

### [16] Band

Band changes.

### [18] BSM

Hold down this button for 2 or more seconds to switch the BSM function ON and OFF.

### [23] Preset Channel

Press to tune the frequencies assigned to the preset button memory. Pressing the (Δ) side tunes in the ext high preset button number, while (▽) tunes in the next lower preset button number. The preset number changes at high speed when you hold either side of this button down.

### [24] Seek Tuning

Press either the (◀) side or the (▶) side. When the (▶) side is pressed, the tuner will automatically receive high frequencies. When the (◀) side is pressed, it will automatically receive low frequencies.

## Operating the CD Player

### [24] Track Number Search

Press to search for a selection (track number) on the current disc. Press the (▶) side to increase the track number on the display, and the (◀) side to reduce the track number. Holding down either side of this button changes the track number at high speed.

## Using the Clock Display

### Parts Identification

#### Fig. 24

- [8] ① Hour adjustment
- [8] ② Minute adjustment
- [8] ③ Clock reset
- [10] Clock

#### Fig. 28

- [35] Clock display

### Displaying the time

When the unit is ON, the clock display [35] is also always ON. Even when the unit is OFF, the clock display [35] will come ON if button [10] is pressed when the ignition key is in the ON or ACC position. Pressing button [10] again will turn the clock display [35] OFF.

### Adjusting the Time

#### Adjusting Hour

While holding down button [10] for more than 2 seconds, press button ① in Bank [8] to adjust the hour setting. Each time button ① in Bank [8] is pressed, the hour advances by one hour. Holding down button ① in Bank [8] advances the hour at high speed.

**Adjusting the Minutes**

While holding down button [10] for more than 2 seconds, press button ② in Bank [8] to adjust the minute setting. Each time button ② in Bank [8] is pressed, the minute advances by one minute. Holding down button ② in Bank [8] advances the minute at high speed.

- After the minute is adjusted, the clock will start from 0 second when button [10] is released.

**Adjust the clock with the "immediate clock adjustment"**

Hold down button [10] for more than 2 seconds and press button ③ in Bank [8]. The time becomes "00:00".

- If the "minute" indication is 00 to 29, it is discarded, and the clock starts.  
(Example: if the time is "10:18", it becomes "10:00".)
- If the "minute" indication is 30 to 59, it is rounded up, and the clock starts.  
(Example: if the time is "10:36", it becomes "11:00".)

● DEH-400DH

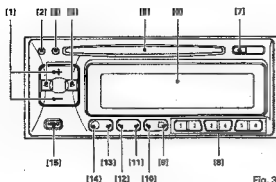


Fig. 39

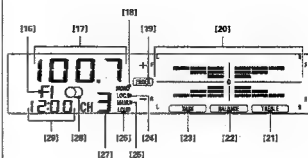


Fig. 40

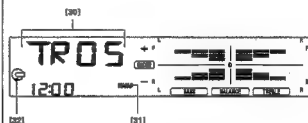


Fig. 41

Connection Diagram (Fig. 42)

1. This unit
2. Antenna Jack
3. Rear output
4. Connecting cords with RCA pin plugs (sold separately)
5. Power amp (sold separately)
6. Fuse holder
7. Blue  
To system control terminal of the power amp or Auto-antenna relay control terminal (max. 300 mA 12 V DC)
8. Blue  
To vehicle (metal) body.
9. Orange  
To terminal always supplied with power regardless of ignition switch position.
11. Red  
To electric terminal controlled by ignition switch (12 V DC) ON/OFF.
12. Fuse resistor
13. Use this for connections when you have the separately available amplifier.
14. With a 2 speaker system, connect to the 2 speakers in the front or the rear.
15. Left speaker
16. Right speaker
17. Front
18. Rear
19. Green
20. Gray
21. Green/black
22. Gray/black
23. Green/red
24. Gray/red
25. Black/green
26. Black/gray

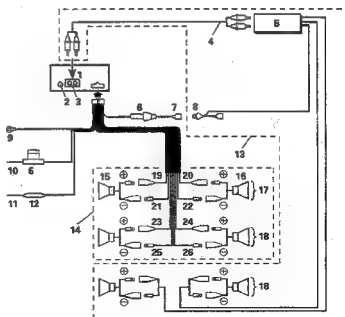


Fig. 42

## Adjusting Volume and Tone

## Parts Identification

## Fig. 39

- [1] Volume/Audio adjustment
- [2] Shift
- [4] Adjustment
- [5] Disc insertion slot
- [6] Display
- [7] Eject
- [9] Attenuator
- [15] Source selector

## Fig. 40

- [18] Fader
- [21] Treble
- [22] Balance
- [23] Bass
- [28] Loudness

## Switching Power On

## Radio

Press button [15] to switch the tuner power on. Press button [16] again to switch the power off.

## CD

When a disc is inserted in the Disc Insertion slot [5], it is loaded and starts playing automatically. The disc is ejected by pressing button [7].

## Changing the source

If button [15] is pressed while a disc is inserted, the source is changed in the following order:  
CD — Radio — OFF

## Adjusting Audio

Press button [1] to adjust the volume. Each press of button [3] changes the display and the function of button [1] as follows:

Volume — Fader (Balance) — Bass (Treble) — Loudness (ON/OFF)

- If no operations are performed within 8 seconds, adjustment modes are canceled. Make adjustments within 8 seconds.
- If the (+) or (−) side of button [4] is pressed when "F-" is shown on the display, it changes to "B-", and the balance can be adjusted. To switch from Balance to Fader, press the (+) or (−) side of button [1], and the display and button [1] function becomes Fader.
- When "BS" is indicated on the display, press the (+) side of button [4] to switch to "TR". When "TR" is displayed, press the (+) side of button [4] to switch to "BS".
- When you're adjusting fader, balance, bass or treble settings, the indicator will stop at the center setting.

## Adjusting Volume

Pressing the (+) side of button [1] increases the volume, while the (−) side decreases it. (Display shows "V-00" — "V-30".)

- When driving your vehicle, be sure to keep the volume of the unit set low enough to allow you to hear sounds coming from outside.

Press button [9] to reduce the volume to 1/10 of its current setting (The "V-" display blinks.). Press button [9] again returns the volume to its original level.

## Adjusting the Fader

When you press the (+) side of button [1], the front speaker volume increases gradually while the rear speaker volume decreases.

When you press the (−) side of button, the rear speaker volume increases gradually while the front speaker volume decreases. (Display shows "F-00" — "F-R9".)

- Please set "F-0" when using 2 speaker system.

## Adjusting Balance

Pressing the (+) side of button [4] shifts the balance to the left speaker, while the (−) side shifts it to the right speaker. (Display shows "B-L9" — "B-R9".)

## Adjusting Bass

Pressing the (+) side of button [1] increases bass, while the (−) side decreases bass. (Display shows "BS - 6" — "BS 6".)

## Adjusting Treble

Pressing the (+) side of button [1] increases treble, while the (−) side decreases treble. (Display shows "TR - 6" — "TR 6".)

## Using the Loudness Control

Pressing the (+) side of button [4] turns the loudness function on, and "LOUD" [28] appears on the display. Pressing the (+) side of button [4] turns it off. This loudness function supplements the insufficiency of low- and high-frequency ranges when the volume is low.

## Changing the Levelizer Display

## Parts Identification

## Fig. 39

- [6] Display
- [10] Levelizer Display Selector

## Fig. 40

- [20] Levelizer Display

Each time you press button [10], it changes to A, B, C, D, E, F and G in order.

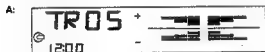


Fig. 43

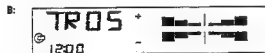


Fig. 44



Fig. 45

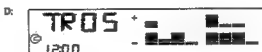


Fig. 46

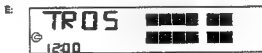


Fig. 47

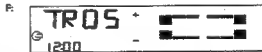


Fig. 48

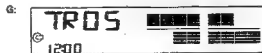


Fig. 49

## Using the Radio

### Parts Identification

Fig. 39

- (4) Tuning
- (6) Display
- (8) Preset
- (11) Best Stations Memory (BSM)/Preset scan
- (12) Local station
- (13) FM stereo, mono/Seek, Manual
- (14) Band
- (15) Source Selector

Fig. 40

- (16) Band
- (17) Frequency
- (18) FM mono
- (24) Local station
- (25) Manual
- (27) Preset number
- (28) FM stereo

### Listening to the Radio

#### Electronic Tuner

Frequency allocation differs depending upon the area. This unit has been designed in accordance with the frequency allocation for North America. Use in other areas will result in improper reception.

1. Press button [15] to switch the radio power on.
2. Press button [15] to select a band.

F — F — F — F  
(FM1) (FM2) (FM3) (AM)

#### Switching between Local and DX

Press button [12] to switch between Local and DX (distant) seek tuning. When "LOC.S" [24] is shown on the display, seek tuning is performed with the local seek sensitivity. Otherwise, seek tuning is performed with the DX seek sensitivity.

#### Switching between FM Stereo and Mono

Generally, it is best to allow the "Super Tuner" function to automatically set the optimum listening conditions. When stereo broadcasting is received, "CD" [28] will appear on the display. When there is a large amount of noise, you can hold down button [13] for 2 seconds or more for clearer mono reception ("MONO" [18] will appear on the display).

#### BSM (Best Stations Memory)

This function automatically locates stronger stations and automatically assigns their frequencies to the buttons in Bank [8], from strongest to weakest. It comes in handy when trying to find local stations while driving.

1. Press button [14] and select a band.
  2. Holding down button [11] for about 2 seconds will start BSM search. At this time, "—" will flash on the display.
  3. The frequency display will return once BSM search is complete, and frequencies are assigned to buttons ① through ⑥ in Bank [8].
- At the end of the BSM search, the displayed frequency is that assigned to button ① in Bank [8].

3. Use seek tuning to tune in a frequency. Ensure that "MANU" [25] is not indicated on the display. (If so, turn it off by pressing button [13].) Press either the (◀) side or the (▶) side of button [4]. When the (▶) side is pressed, the tuner will automatically receive high frequencies. When the (◀) side is pressed, it will automatically receive low frequencies.
4. Adjust volume and tone.
5. Assign the tuned frequency to one of the buttons in Bank [8] (Preset memory). Press and hold down one of the buttons in Bank [8] for at least 2 seconds. The frequency is assigned to the selected button when the preset number [27] stops flashing on the display. Up to 18 FM stations (6 each for FM1, FM2 and FM3), and 6 AM stations can be assigned to the preset memory buttons in Bank [8].

6. Once a frequency is assigned to a button in Bank [8], you just need to press that button to tune it in. This also causes the number of the button pressed to appear at position [27] on the display.

#### Manual Tuning

Use manual tuning when stations are too weak to be picked up by seek tuning.

1. Turn on "MANU" [25] by pressing button [13].
2. Each press of the (▶) side of button [4] increases the frequency in 0.2 MHz steps in the FM band, 10 kHz in the AM band. Pressing the (◀) side of button [4] decreases the frequency. Holding down either side of button [4] changes the frequency at high speed.

decreases the frequency. Holding down either side of button [4] changes the frequency at high speed.

#### Adjusting Seek Sensitivity

The seek tuning function of this tuner lets you select between a local setting for reception of strong stations only, and a DX (distant) setting for reception of weaker stations. The local setting also has 2 seek tuning sensitivity levels for FM and 2 levels for AM to match local conditions.

#### Changing the Local Seek Sensitivity

1. Use button [14] to select a band.
  2. Hold down button [12] for more than 2 seconds, and the display will show you the current local seek sensitivity for about 5 seconds.
  3. While the local seek sensitivity remains on the display, press the (▶) side of button [4] to increase the sensitivity level, and the (◀) side to decrease the level as shown below.  
FM: LOC1 = LOC2 = LOC3 = LOC4  
AM: LOC1 = LOC2  
The LOC4 setting allows reception of only the strongest stations, while lower settings let you receive progressively weaker stations.
- The display of local seek sensitivity returns to the frequency when about 5 seconds have elapsed after the change of sensitivity.

## Playing Compact Discs

#### Discs

- Only use compact discs (optical digital audio discs) bearing the mark shown below (Fig. 50).



Fig. 50

- Do not use cracked, scratched, or warped discs.
- Do not touch the disc's playing side. Handle the disc as shown below (Fig. 51).

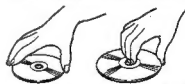


Fig. 51

- Do not affix any label on the disc.
- Do not apply any vinyl record spray, antistatic agent, benzene, paint thinner, or any other volatile chemicals.

- Do not play a dirty disc. Use a soft cloth to clean a dirty disc as shown below. Wipe the disc outward from the center (Fig. 52).



Fig. 52

- Do not place the disc in high temperatures and direct sunlight.
- Be sure to store the disc in its case.

## CD Playing Environment

- Disc playback may be interrupted by sudden road shock.
- When the air temperature is low and the car heater is turned on, condensation on the disc and internal parts of the unit may prevent proper playback operation. If this happens, turn off the unit and wait one hour until the condensation is gone. Also, use a soft cloth to wipe off any condensation from the disc.

## Parts Identification

### Fig. 39

- [4] Track number search/Fast Forward, Reverse
- [6] Display
- [7] Eject
- [8] ① Pause
- [8] ② Repeat
- [8] ③ Random play
- [13] Manual
- [15] Source selector

### Fig. 41

- [30] Play mode display
- [31] MANU
- [32] Disc indicator

## Listening to the CD player

- With the label side up, insert a disc into [5]. Playback will start. (The track number [30] will be displayed.)
  - Do not insert the disc with the label side down. Doing so may scratch the disc.
  - If the disc stops midway while it is being inserted or if there is no playback after a disc is inserted, something may be wrong with the disc. Eject the disc and check it.
- Adjust volume and tone.
- Eject the disc by pressing button [7].
  - Do not leave the disc halfway into the unit as shown below. Doing so may cause the disc to be bent or dropped (Fig. 53).



Fig. 53

## Track Number Search

The track number search function lets you select a particular track on the disc you are listening to.

Check that "MANU" [31] is not lit on the display. If it is lit, turn it off by pressing button [13]. The track number [30] is incremented by pressing the [➡] side of button [4], and decremented by pressing the [⬅] side. Holding either side of button [4] down changes the track number at high speed.

## Using Fast Forward and Reverse

- Press button [13] to turn on the "MANU" indication [31].
- Press the [➡] side of button [4] to fast-forward, or the [⬅] side to reverse.
  - Sound can be heard while fast-forwarding or reversing.

## Repeat

- To repeat the music you are listening to, press button ② in Bank [8] ("RP" will appear on the display [30]).
- To cancel music repeat, press button ② in Bank [8] to turn off "RP".

## Random Play

- To play music randomly, press button ③ in Bank [8] ("Rd" will appear on the display [30]). Once the current track has been played, the microprocessor will randomly select the next and subsequent tracks.
- To cancel random play, press button ③ in Bank [8] to turn off "Rd".
  - Since selections are played in random order, the same selection may be played twice in succession.

## Pausing

- Press button ① in Bank [8] to pause during disc playback ("—" appears on display [30]).
- Press button ① in Bank [8] again to release pause.
  - You can select a track using the track number search during pause. ("—" is off while a track is being searched.) When the track search ends, the found track is paused at its beginning.

## Error Mode

If there is a problem with CD playback, an error code will be displayed. (Ex: "E-14") If an error is displayed, refer to the table below to identify the problem. If the error is displayed even after corrective action is taken, contact your dealer or the nearest authorized PIONEER Service Station.

### D: Display

### C: Cause

### T: Treatment

- D: E-11, 12, 14, 17, 30
- C: The disc is dirty.
- T: Clean the disc.
- D: E-11, 12, 17, 30
- C: The disc is scratched.
- T: Replace the disc.
- D: E-11, 14, 17
- C: The disc is inserted with the label side down.
- T: Insert the disc with the label side up.
- D: E-14
- C: An unrecorded CD-R is being used.
- T: Check the disc.
- D: E-10, 11, 12, 14, 17, 30, A0
- C: Electrical or mechanical fault.
- T: Turn off the car's ignition and turn it back on again. Or change the source to another one and then change it back to CD.

## Using the Clock Display

### Parts Identification

Fig. 39

- [8] ① Hour adjustment
- [8] ② Minute adjustment
- [8] ③ Clock reset
- [10] Clock

Fig. 40

- [29] Clock display

### Displaying the time

When the unit is ON, the clock display [29] is also always ON. Even when the unit is OFF, the clock display [29] will come ON if button [10] is pressed when the ignition key is in the ON or ACC position. Pressing button [10] again will turn the clock display [29] OFF.

### Adjusting the Time

#### Adjusting Hour

While holding down button [10] for more than 2 seconds, press button ① in Bank [8] to adjust the hour setting. Each time button ① in Bank [8] is pressed, the hour advances by one hour. Holding down button ① in Bank [8] advances the hour at high speed.

#### Adjusting the Minutes

While holding down button [10] for more than 2 seconds, press button ② in Bank [8] to adjust the minute setting. Each time button ② in Bank [8] is pressed, the minute advances by one minute. Holding down button ② in Bank [8] advances the minute at high speed.

- After the minute is adjusted, the clock will start from 0 second when button [10] is released.

#### Adjust the clock with the "immediate clock adjustment"

Hold down button [10] for more than 2 seconds and press button ③ in Bank [8]. The time becomes "00:00".

- If the "minute" indication is 00 to 29, it is discarded, and the clock starts. (Example: If the time is "10:18", it becomes "10:00".)
- If the "minute" indication is 30 to 59, it is rounded up, and the clock starts. (Example: If the time is "10:38", it becomes "11:00".)

